PB85-164333

Study of the Future Federal Role in Municipal Wastewater Treatment Report to the Administrator. Appendices

(U.S.) Environmental Protection Agency
Washington, DC

Jan 85

U.S. Department of Commerce
National Technical Information Service
NTIS

APPENDICES:

REPORT TO THE ADMINISTRATOR:

STUDY OF THE FUTURE FEDERAL ROLE IN MUNICIPAL WASTEWATER TREATMENT

U.S. ENVIRONMENTAL PROTECTION AGENCY

JANUARY 1985

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APPENDIX A

"CALL FOR PAPERS" AND COMMENTS/CORRESPONDENCE

ENVIRONMENTAL PROTECTION AGENCY

[OW-FRL-2528-4]

Federal Role in Municipal Wastewater Treatment; Study

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: This notice sets forth the elements and the schedule of an EPA study on the Federal role in promoting long-term self-sufficiency in the management, construction, operation and replacement of municipal wastewater treatment facilities. The study will examine alternative strategies for providing Federal assistance, including a range of transitional technical, managerial, and non-financial assistance. The purpose of this notice is to inform potentially affected parties of the study and to issue a call for papers on the study elements described in this notice. In conjunction with the reauthorization of Title II of the Clean Water Act, the study will provide a basis for possible changes in the current municipal wastewater treatment construction grant program. The Office of Water Program Operations (OWPO), EPA, will be the principal staff organization for this study. An EPA-wide Task Force on the Reauthorization of the Municipal Wastewater Treatment Construction Grants Program will provide overall direction for the study. The Task Force and OWPO staff will be aided by an Interagency Group, the Construction Grants Management Advisory Group (MAG), and a Liaison Group.

DATES: In order to receive adequate consideration, papers and written comments on the study elements described in this notice should be submitted on or before April 2, 1984.

ADDRESS: Comments should be addressed to: George P. Ames, Acting Chief, Policy and Guidance Branch (WH-595), Office of Water Program Operations, Office of Water, EPA, 401 M Street, SW., Washington, D.C. 20460.

FOR FURTHER INFORMATION CONTACT: Charles Moser, Office of Water Program Operations (WH-595), EPA, Washington, D.C. 20460, (202) 382-7278.

SUPPLEMENTARY INFORMATION:

I. Purpose

EPA is undertaking a study of Federal, State and local roles in obtaining expeditious construction of municipal wastewater treatment facilities needed to meet the requirements of the Clean Water Act. The study will identify and evaluate program alternatives which will effectively and efficiently assist local communities in meeting two underlying objectives of the Clean Water Act:

- To foster long-term local self-sufficiency and capability to construct, operate, and replace municipal wastewater treatment facilities, and
- To facilitate compliance by municipal wastewater treatment facilities with the requirements of their National Pollutant Discharge Elimination System (NPDES) permits.

A major goal throughout the course of the study will be to develop a national consensus for an appropriate funding delivery mechanism and an appropriate level of Federal involvement (financial and otherwise) for the period beyond the current authorization ending in fiscal year (FY) 1985. In order to provide an opportunity for public involvement and input to the study and to provide necessary background information and analyses for developing recommendations on the appropriate Federal role, this notice provides a call for papers and written comments on various study elements. The study recommendations will be considered within the context of reauthorization of the construction grants program.

II. Study Assumptions

A primary assumption underlying this study is that the needs and capabilities of various types of communities may differ markedly. Thus, the study will describe the needs and capabilities of small, medium, and large communities, with special attention to their unique water quality and financial requirements. In determining financial capability, the study will assess not only the financial resources of communities, but will also assess the ability of individual households to pay for wastewater treatment.

A further assumption of the study is that the attainment of the goal of long-term self-sufficiency, with an attendant reduction in the level of Federal financial involvement in the construction of municipal wastewater treatment facilities, should be phased to minimize potential disruption. A corollary assumption is that expeditious compliance by municipalities with the requirements of the Clean Water Act may require some type of continuing Federal presence in the financial arrangements for certain types of projects in certain communities. In addition, the study will examine the emerging issue of future replacement needs for communities that have previously received Federal grants to construct all of the treatment facilities needed to meet the requirements of the Clean Water Act. The study then will clarify whether such communities will be eligible for further Federal financial assistance in replacing facilities after the end of their useful life.

At the completion of this study, the Agency expects to develop a legislative proposal for a recommended Federal funding strategy, which will describe the funding delivery mechanism(s) to be used, a timetable for implementation, and specification of the dollar amounts to be authorized. The study does not assume that the final recommendation will necessarily be limited to any one particular funding delivery mechanism, *e.g.*, grants, or loans. Rather, the study assumes that alternatives comprised of a combination of different Federal funding mechanisms should be examined as a means of addressing differing community needs and capabilities.

III. Study Methods

A. *Baseline Capability Analysis for Local Communities:* In order to provide a baseline for analyses, the study will assess the ability of different types of communities to provide wastewater treatment without Federal financial assistance. In the absence of Federal financial assistance, the study will assume that local communities will rely upon local sources of capital financing and revenue. Such sources include, but are not limited to, the issuance of municipal debt (general obligation bonds and revenue bonds), new sewer connection charges, *ad valorem* taxes, and sewer use charges. This baseline analysis will assume that communities will complete all needed municipal wastewater treatment projects, including wastewater treatment facilities, interceptor sewers, collector sewers, the rehabilitation of existing collector systems, the correction of infiltration and inflow to existing systems, and the correction of combined sewer overflows. As part of this analysis, the study will also set forth non-financial Federal actions in helping States and communities reassess their needs and enhance their technical, managerial and financial skills.

B. *Assessment of State Funding Alternatives:* Where a need for outside financial assistance has been identified, the second phase of the study will examine the extent to which State programs or other non Federal means of financing will be capable of meeting the need. Existing and proposed State programs for financial assistance will be identified and analyzed in terms of their ability to address the needs of certain communities.

C. *Assessment of Private Sector Funding Alternatives:* The study will also identify the feasibility and magnitude of the potential use of private sector funding in assisting local communities to construct and operate needed facilities.

D. *Assessment of Federal Funding Alternatives:* Given the baseline local resources and the extent to which States and the private sector can provide financial resources, the study will next address the need for Federal financial assistance to communities that will be least able to meet their projected needs. The study does not assume that any one particular form of Federal financial assistance will be recommended. A preliminary listing of types of aid would include Federal credit support, loan guarantees, loans (subsidized or market rate), and grants. A wide range of delivery systems for such types of aid will also be considered. For each type of community, the study will examine the type and level of Federal assistance that best addresses its special needs, while promoting long-term local self-sufficiency and compliance.

The design of the Federal funding alternatives will be constrained by certain factors, which are identified here at the outset of the study. First, Federal funding alternatives will be examined in terms of the provisions of the current U.S. tax code. Although the study will consider the effects of proposed legislation to change the tax code, the study will *not* take a position on such proposals. Furthermore, the study will not develop or recommend alternatives that would require changes to the U.S. tax code.

Second, the design of Federal funding alternatives will be limited by provisions of the 1981 Amendments to the Clean Water Act (Pub. L. 97-117) which established certain limits on the extent of Federal financial involvement for certain alternatives. Thus, for alternatives providing a continuation of the construction grant program, the study will *not* re-open the issues of grant eligibilities for reserve capacity and collector sewers, nor will the study consider options for increasing the

Federal grant share above 55 percent as defined in the 1981 Amendments. This initial limitation is applied to the construction grants program and will not constrain the consideration of other Federal assistance programs that might target Federal funds to projects not eligible under the construction grants program as amended by the 1981 Amendments.

Finally, the study will seek to limit the long-term dollar value for potential Federal financial involvement to a value equal to or less than $37 billion (1982 constant dollars), which represents an estimated dollar amount for Federal grants that would be potentially required if all wastewater treatment needs under the 1981 Amendments were addressed through the construction grants program.

V. Evaluative Criteria for Assessing Alternatives

The study will evaluate funding alternatives according to the following criteria:

A. *Changes in Federal Subsidy Cost and Local Share:* In order to compare changes in grant, loan and other Federal funding alternatives from the current program, the concept of equivalent Federal grant share will be used. For subsidized interest loan programs and private sector funding arrangements that use tax subsidies, a present value of the Federal subsidy will be calculated. Each funding mechanism will be assessed to determine the proportionate share of the funded projects borne by the Federal Government, and the annual cost to the U.S. Treasury. Each funding alternative will also be evaluated in terms of changes in an estimated annual cost to municipalities and typical users.

B. *Equity:* Each funding alternative will be evaluated according to its financial impact to different types of communities and their citizens. The financial impact of each alternative will be evaluated in terms of the annual project costs to communities and their citizens, the financial resources of communities, and the ability of citizens to pay for wastewater treatment facilities.

C. *Effectiveness:* Each funding alternative will be evaluated in terms of its effectiveness in targeting funds in a cost-effective and timely manner to those municipal wastewater treatment projects which contribute most directly to a community's ability to meet the requirements of its NPDES permit. This criterion will thus evaluate for each alternative the key elements that address eligibility determinations for funding, the basis for setting priorities among projects, the time required to advance funds, and any comparative cost savings that may result from the use of a given alternative.

D. *Compliance:* Each funding alternative will be evaluated according to its ability to increase each community's incentive to comply with the requirements of its NPDES permit. In applying this criterion, consideration will be given to elements of alternatives that link the award of Federal financial assistance to demonstrated compliance, and elements of alternatives that encourage municipalities to construct needed wastewater treatment facilities if Federal funds are currently unavailable.

E. *Implementation Goals:* The study will identify the institutional, program management and legislative changes that may be required to implement each funding alternative. Then, each alternative will be evaluated in terms of its ability to provide long-term stability and certainty in the construction program, its ability to enhance State and local government flexibility and participation in the program, and the ease by which it can be implemented in the short and long term.

V. A Call for Papers

To facilitate the conduct of the study, the Agency invites papers from affected parties on the following study elements:

A. *Prerequisites for Local Self-Sufficiency:* Papers on this topic should describe problems that contribute to a lack of long-term local self-sufficiency in the construction, management, operation and replacement of needed municipal wastewater treatment facilities. Such papers should discuss prerequisite functions and responsibilities that must be performed by publicly owned treatment works operators/owners in order for the treatment plant to be considered self-sufficient. (Such papers may also discuss those functions and responsibilities that should be handled at a State or Federal level.) The Agency specifically requests that papers on this topic address possible Federal, State and local actions that will ensure the collection of adequate user charges and other revenues, such that all operations, maintenance and replacement expenses will be fully met at the local level.

B. *Local Financial Needs and Capabilities:* Papers on this topic should address differences in the financial needs/capabilities of various types of communities, with special attention to factors such as community size, State and/or local laws affecting local financing, and the type of wastewater treatment needs faced by communities, *e.g.*, CSO problems, need for new collectors or wastewater treatment facilities. Such papers should address the ability of communities to finance needed facilities with and without Federal funding.

C. *Capital Financing Delivery Systems:* Papers on this topic should address the framework needed to implement certain capital financing delivery systems. Papers may be comparative or focus on a particular delivery system. A preliminary listing of capital financing delivery systems is as follows:

—Traditional Municipal Debt Issues: Bonds.

—Municipal Leasing (or Sale/Leaseback) of Facilities.

—Tax-subsidized privatization schemes in the absence of direct Federal funds.

—External Credit Support Programs: Bond insurance, loan guarantees.

—Intergovernmental Loan Programs: State or Federal loans.

—Grant Programs: State or Federal Categorical grants programs or block grant programs.

—Intergovernmental Revenue Transfer: General Revenue Sharing (GRS) or State pass-through of GRS to local governments.

There are many variants to each of these approaches. As an aid in comparing alternatives, it is suggested that writers, to the extent possible, provide detailed descriptions of the mechanics of delivery systems such that the evaluate criteria may be applied (see Section IV of this notice). The Agency specifically requests that papers on this topic include a comparison of the Federal subsidy cost of a delivery system with that of a Federal grant.

D. *Preliminary Listing of Federal Funding Alternatives:* Papers are requested on the feasibility and desirable features of the following examples of possible Federal funding alternatives. The listing is arranged starting from the level of least Federal involvement and proceeding to the highest level of Federal involvement envisioned given the scope of this study. The listing is *not* all inclusive, and can be expanded or refined. A Federal funding alternative could involve a combination of these approaches, with program responsibilities resting with EPA, States, Farmers Home Administration (FmHA), newly created entities, or shared responsibilities.

1—Complete local (or State) financing. No direct Federal grants or loans. Reliance upon traditional and innovative local financing (plus any State-initiated grant or loan programs).

2—1, but provide a loan program for small or needy communities, such as that conducted by Farmers Home Administration (FmHA).

3—2, but extend loan program to larger eligible projects.

3–1: State Loan Banks started with Federal seed money.

3–2: Federal Trust Fund loan program.

4—3, but add a limited categorical grants program for eligible small communities, *e.g.*, the combined FmHA loan/grant program.

5—4, but add a categorical grants program for the completion of projects that had received some initial EPA construction grants funding.

6—Extend the authorization period for the construction grant program under FY 1985 requirements.

6–1: Convert to block Grant.

6–2: New Federalism.

It should be noted that a Federal *strategy* might include additional elements beyond mere financing arrangements. For example, regardless of the funding mechanisms used, consideration will be given to alternative methods of expediting cost-effective planning, design construction, and operation services.

VI. Study Recommendations

The study will provide the basis of recommendations for legislative proposals on reauthorization of the construction grants program. A final report will be prepared which summarizes the issues and alternatives addressed in the papers and comments received. The recommendations will address alternatives of delivery system(s) for the Federal funding, the time period for authorization, and levels of Federal funding.

VII. Study Organization and Schedule

As noted in the summary section of this notice, the principal staff support for this study will be provided by the EPA Office of Water Program Operations (OWOP), which will coordinate and manage the activities of a staff-level work group. Direction of the study will be provided by an EPA-wide Task Force on the Reauthorization of the Municipal Wastewater Treatment Construction Grant Program, comprised of selected EPA Assistant Administrators and Associate Administrators, a Regional Administrator, a Deputy Regional Administrator, a Regional Water Management Division Director, the Office Director, OWPO, and an ex officio State member. The Task Force will be chaired by the Assistant Administrator for the Office of Water.

The Task Force and study working group while be directly aided by an officially constituted advisory group to the construction grants program (the Construction Grants Management Advisory Group (MAG)), and an Interagency Group consisting of Federal Government officials from other U.S. government agencies and departments. An informal Liaison Group will be used to coordinate study activities with outside parties and receive comments from associations of State and local government officials, organizations of the manufacturing, construction, engineering, and consulting professions, environmental groups, and representatives of other interest groups in the municipal water pollution control field.

The papers received in response to this notice will be included in full or in part in an appendix to the final report. Copies or summaries of such papers will be provided to members of the Task Force, Interagency Group, MAG and the Liaison Group. To ensure adequate consideration, all comments and papers in response to this notice should be directed to the individual and location provided in the ADDRESS section of this notice.

The Agency expects to complete the study in accordance with the following schedule of activities.

Activity	Date
Close Comments	April 2, 1984
Complete Background Studies	June 15, 1984.
Final Report	November 1984.
Legislative Proposal	February 1985 (90th Congress, 1st Session).

Dated: February 10, 1984.

Jack E. Ravan,

Assistant Administrator for Water.

[FR Doc. 84-4231 Filed 2-15-84; 8:45 am]

BILLING CODE 6560-50-M

american concrete pipe association

April 9, 1984

Mr. Jack E. Ravan
Assistant Administrator for Water
U. S. Environmental Protection Agency
401 M. Street, S.W., Room #1035 (ET)
Washington, DC 20460

Dear Jack:

As a follow-up to our thank you letter of April 6th, our Government Relations Committee met the afternoon after your presentation at our Convention on April 3, and agreed with your outlook on the one-year study.

Please give George Ames of your staff a copy of this letter for his file as our official position on the study which is underway.

Best regards,

Cyril M. Malloy
Vice President of Government Relations

CIM:mah

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ACEC File # 708
731.10

american consulting engineers council

1015 FIFTEENTH STREET, N.W., WASHINGTON, D.C. 20005-2670 ☐ (202) 347-7474
Telex 897445 AMCONENGRC WSH

April 26, 1984

Mr. George F. Ames
Acting Chief, Policy and
Guidance Branch (WH-595)
Office of Water Program Operations
United States Environmental
Protection Agency
Washington, D.C. 20460

Dear George:

On April 4, the Environmental Committee of the American Consulting Engineers Council approved the attached resolution on "Federal Wastewater Financing". We are pleased to submit this resolution and the supporting position paper to you as ACEC's proposal for an alternative to the construction grants program. The resolution will be considered by ACEC's Executive Committee at our Annual meeting in May.

We appreciate the opportunity to provide our comments and look forward to continued interaction on this issue.

Sincerely,

Larry Bory

Laurence D. Bory
Director
Governmental Affairs

LDB/jb
Enclosure

President SHELBY K. WILLIS Salina, Kansas • Senior Vice President VERNON B. SPALDING Madison Heights, Michigan
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Federal Wastewater Financing

WHEREAS the American Consulting Engineers Council has actively participated in legislative and regulatory aspects of federal wastewater financing since the current law was passed in 1972; and

WHEREAS ACEC recognizes that much progress has been made to clean up the waters of the U.S. but that more than $100 billion is needed to meet clean water goals and some federal participation is necessay to provide incentives to achieve clean water goals by the end of the decade; and

WHEREAS ACEC has consistently urged greater participation by local and state governments and the private sector in implementing national goals such as those for clean water; and

WHEREAS ACEC believes reduced federal financial participation should be accompanied by reduced federal requirements in implementing clean water facilities leaving greater discretion to local governments and their consulting engineers;

NOW THEREFORE IT BE RESOLVED that the American Consulting Engineers Council urges the U.S. Congress to consider and include the following principles in reauthorization of the federal wastewater financing program.

1. Convert the current grant program to a low interest loan subsidy and guarantee program to permit localities to obtain low interest private financing at less than 5 percent.

2. Permit all related pollution control costs to be included in the loans so subsidized and guaranteed.

3. Limit federal loan interest subsidies and guarantees to pollution control needs for current population.

4. Authorize such interest subsidy/guarantee program for ten years with federal costs not to exceed $3.5 billion annually.

5. Encourage all communities to commence construction of pollution abatement facilities as soon as possible by restricting federal interest subsidies and guarantees only to those projects initiated before the end of FY1990.

6. Extend such federal assistance to all communities regardless of size.

7. Limit federal management of the loan subsidy/guarantee program to approval of the local financial plan and issuance of criteria for repayment, subsidy, default and

related issues; re-emphasize the role of the states in project review certification and compliance.

8. Strongly reiterate federal responsibility to enforce clean water compliance by municipalities by the Congressional mandated date of 1988.

ACEC Position Paper on Federal Wastewater Financing

Congress passed the Clean Water Act (P.L. 92-500) in 1972, which included the Wastewater Construction Grants program. Under that program more than 13,000 projects have been completed. Many thousands more have been awarded funds to commence the process of planning, designing and building, which often takes 8 to 10 years to complete. Although $37 billion has been appropriated by Congress, EPA estimates that more than $100 billion is needed to complete the job of cleaning up the nation's waters. Current federal funding is limited to $2.4 billion annually. It is clear that even with the 1981 statutory changes in federal matching requirements and eligible costs, which takes effect in October 1984, it will take more than 20 years for all municipal treatment needs to be met at current appropriation levels.

Compliance with clean water goals by municipalities have twice been extended. Currently 1988 is the deadline. Without firm and fair enforcement and the incentive of access to reasonable cost capital, local communities are not likely to proceed with planning, design and construction to meet the 1988 deadline or to be on a legally enforceable compliance program.

ACEC proposes, therefore, a redirection of the federal wastewater financing program which will meet the following objectives:

1. Provide greater access to reasonable cost capital for wastewater facilities construction (as much as $100 billion).

2. Permit localities a feasible method to meet the 1988 compliance deadline.

3. Reduce federal financial participation in individual projects and increase reliance on the private sector financial markets.

4. Reduce federal funding requirements and conditions to financial terms and ability to repay through adequate rates.

5. Separate financing and enforcement in federal policy.

To accomplish these objectives ACEC proposes these changes in the Clean Water Act to accomplish the goals of the law and to accelerate local project construction:

1. Convert the current grant program to a low interest loan subsidy and guarantee program to permit localities to obtain low interest private financing at less that five percent.

At current authorized levels, even with the increased local share and reduced federal cost eligibility, it will take 20 years to complete the estimated $100 billion backlog needs under the grants program. Increasing the authorization and shifting the grant funds to direct federal loans will accelerate the completion schedule only slightly. In no case will the 1988 compliance deadline for municipal treatment be met. What is needed is a program that will have the same benefit as a grant program to local communities and sewage ratepayers, and provide the incentives to attract more private sector financing into the construction of treatment plants. Based on analysis performed by the NSPE Construction Grants Committee (which includes ACEC members) a loan guarantee subsidized interest program would reduce interest rates for communities to five percent or below and leverage more than $60 billion in construction funds for treatment systems by 1988. The federal funds would change, therefore, from the primary funding source to a catalyst for attracting more private sector resources into the wastewater infrastructure.

2. Permit all related pollution control costs to be included in the loans so subsidized and guaranteed.

The 1981 Amendments to the Clean Water Act not only changed the federal matching share from 75 percent to 55 percent, but also eliminated from federal eligibility all project components except treatment plants and interceptors. Except for a provision which allows 20 percent state flexibility to allocate funds to other needs, the law eliminated all funds for collector systems, combined sewer overflows and other costs previously eligible. In 1981, ACEC in its joint statement with the AGC and WWEMA urged that states be delegated the decision making authority to allocate funds to all system components that contribute to pollution reduction. Under a system of subsidized and guaranteed loans, all costs related to pollution control should be eligible.

3. Limit federal loan interest subsidies and guarantees to pollution control needs for current population.

The Clean Water Act, when first enacted in 1972, was intended to provide federal assistance under the construction Grants program for municipalities to upgrade facilities to discharge criteria consistent with federal water quality criteria. The program also required that once built, systems should be maintained and replaced as needed utilizing local resources generated by sewer rates. Congress did not intend the program to continue without end, nor that systems would encourage transfer of population or industry by including excess capacity for growth. To encourage the creation of utility based systems, federal assistance should only subsidize and gurantee loans to

treat the capacity needed by existing population. Any built-in reserve capacity for growth should be financed without federal assistance.

4. Authorize such interest subsidy/guarantee program for ten years with federal costs not to exceed $3.5 billion annually.

The advantage of an interest subsidy/guarantee program is that it accelerates the total funds available for planning, design and construction. The disadvantage is that the federal liability continues over the life of the bond issue (between 20 and 40 years). In this way while the federal share of the total construction than can be achieved in five to eight years is much lower, the duration of the federal obligation is longer. It is not likely that $3.5 billion would be necessary for each of ten years. However, the authorization should be made at this level to assure long term market planning.

5. Encourage all communities to commence construction of pollution abatement facilities as soon as possible by restricting federal interest subsidies only to those projects initiated before the end of FY1990.

Federal assistance is no guarantor of the Clean Water Act goals being met, if communities will not respond. Therefore, a specific end date to the initiation of projects must be included as an incentive. It is suggested that since the compliance target established by Congress is 1988 for municipalities and there will be more funds available under the guarantee subsidy program, that Congress establish a specific end date for project initiation of not later than 1990.

6. Extend such federal assistance to all communities regardless of size.

It has been suggested that very small and very large communities will not be able to afford to construct wastewater facilities under a loan guarantee program subsidy no matter what the interest rate. Nonetheless, ACEC believes in the interests of equity that all communities be extended this program. If Congress is persuaded that some additional assistance program is necessary, let that be added. However, it is ACEC members experience that where a grant of any kind is offered to some, it is a disincentive to others to borrow money to commence their own project.

7. Limit federal management of the loan subsidy guarantee program to approval of the local financial plan and issuance of criteria for repayment, subsidy, default and related issues; reemphasize the role of the states in project review certification and compliance.

ACEC has consistently urged reduction of the federal requirements on federal assistance which are not related to water quality improvement. Since the federal share under the guarantee interest subsidy program will be very low as compared to the local communities obligation, the federal requirements should be limited to assurance of repayment and sound financial management. The states should be responsible for all other certification and review requirements consistent with the goal of the Clean Water Act which directs that the states shall manage the program.

8. Strongly reiterate federal responsibility to enforce clean water compliance by municipalities by the congressionally mandated date of 1988.

Effective enforcement is critical to the success of the Clean Water program. Under the grants program non-compliance was rewarded by directing more funds to cities reluctant to undertake the steps necessary to comply, sometimes by order of a federal judge. Other cities in the state were left without funds despite their priority and willingness to proceed. There will be no such disincentive under a loan guarantee subsidy program. Nonetheless, EPA must persist and step up efforts to enforce accomplishment of meeting discharge criteria by 1988.

AMI AMERICAN MEAT INSTITUTE
Serving The Meat Industry Since 1906

May 30, 1984

Mr. George F. Ames
Policy and Guidance Branch (WH-595)
Office of Water Program Operations
Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

RE: COMMENTS SUBMITTED TO EPA AT MAY 31, 1984 PUBLIC MEETING ON FEDERAL ROLE IN MUNICIPAL WASTEWATER TREATMENT

Dear Mr. Ames:

The American Meat Institute (AMI) is the national trade association representing approximately 450 meat packers and processors. AMI appreciates the opportunity to submit comments on the federal role in municipal wastewater treatment.

Many of our members' plants use municipal waste treatment facilities. Efficient, economical municipal waste treatment is of utmost interest to us. First, AMI believes large federal grant programs have fostered the construction of treatment facilities more elaborate and expensive than required to achieve water quality objectives. Upgrading existing facilities should be considered a viable option. Review of treatment facility designs must also be quicker and simpler than under the previous grant program.

Flexibility should be provided to state and federal officials to allocate available funds to solve significant water quality problems. Limited federal, state and local funds should be spent only where a demonstrated need exists. Unnecessary treatment that results in no significant water quality benefits should be avoided.

Finally, industrial users should be allowed to participate in POTW planning and NPDES permit negotiations. Too often, the industrial user does not realize the economic consequences associated with such activities until rates increase or a POTW can no longer accept a plants' effluent without significant reductions in volume and/or strength.

Thank you for considering these comments.

Sincerely,

James H. Hodges
Director
Technical Services

JHHkcr

P.O. Box 3556, Washington, D.C. 20007 • 1700 North Moore Street, Arlington, VA 22209 • 703/841-2400

Association of State and Interstate Water Pollution Control Administrators

ASIWPCA

August 25, 1984

Robbi J. Savage
Executive Director
Secretary Treasurer

Honorable William D. Ruckelshaus
Administrator
U.S. Environmental Protection Agency
401 M Street, S.W. (A-100)
Washington, D.C. 20460

Dear Bill:

The Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) is vitally concerned with successful completion of necessary municipal water pollution control facilities to achieve the goals of the Clean Water Act. That issue is currently being addressed by the Agency's POTW Future Funding Study. As an ad hoc member of that group and based on information which has recently been shared with our organization, we understand that the study may conclude that a block grant program for state revolving funds may be a major or preferred alternative.

The House of Representatives has recently passed H.R. 3282 which contains provisions for a similar funding mechanism to accompany the construction grant program. In view of these two concurrent and substantially similar initiatives, the Association urges that the issues and concerns on the attached list be thoroughly discussed and resolved prior to the completion of the U.S. EPA study.

We appreciate your willingness to review these most critical of issues and we look forward to a continued cooperative approach to addressing the enhancement of our nation's waterways.

Most sincerely,

Robbi

(Ms.) Robbi J. Savage

cc: ASIWPCA membership

Hall of the States • 444 North Capitol Street, NW, Suite 330 • Washington, D.C. 20001 • (202) 624-7782

Issues and Concerns

- Would a minimum state contribution to the revolving fund be required? If so, to what degree?
- What level of federal funding would be provided? For how many years? What assurances of that amount of funding would be provided? Funds must be adequate to assure that an adequate self-sustaining fund can be established.
- What flexibility will states have to provide grants, loans or other financial assistance to local government from the revolving fund? Would a local ability to pay criteria be set to determine a grant/loan mix? What criteria would be appropriate?
- Would all construction grant program requirements apply to the first use? What about subsequent uses?
- Funds should be dedicated to provide assistance to municipalities for water pollution control uses. However, greater flexibility should be available to later uses.
- An adequate transition period must be provided to allow states sufficient opportunity to set up and implement a water pollution control revolving fund. At least 2 years would be required for many states to set up the revolving fund. At least two more

years would be necessary to determine program effectiveness.

- If a state should elect not to set up a revolving fund?

- How would Federal and/or state funds be leveraged by bond sales? Would leveraging be required? To what extent?

- If bonding is required to leverage available funds, what source of funds would back the bonds to assure repayment to bond holders? What would be the source of funds to pay interest costs? What would be the source for capital costs?

- Should there be differing commitments on a grant/loan mix to "grandfathered" projects, projects actively participating in the current construction grant program and projects which may develop as a result of compliance activities?

- An assessment should be made of how a loan program in lieu of the current construction grant would affect local user costs.

- How does the discussion of a long term (10 years) funding program relate to the current statutory deadline of July 1, 1988 for municipal compliance?

- The states need to be assured of continuation of federal contributions to a revolving fund for the full planning period at the initial level of appropriations and consistent allocations.

- Would traditional construction grant eligible facilities be eligible for assistance from the revolving fund?

- How would program achievement be managed?

- What would the impact be on the bond market and and interest rates of many states issuing bonds to establish revolving funds?

ASSOCIATION OF METROPOLITAN SEWERAGE AGENCIES
SUITE 200 1015 18th ST., N.W., WASHINGTON D.C. 20036 (202) 659-9161

April 6, 1984

Mr. George F. Ames
Acting Chief
Policy and Guidance Branch
WH-595
Office of Water Program Operations
Office of Water
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

RECEIVED FRD APR 10 1984

Dear Mr. Ames:

The Association of Metropolitan Sewerage Agencies is pleased to submit its comments on EPA's Future Construction Grants Study.

We look forward to continuing to work with you on this matter over the next several months.

Sincerely,

Ken Kirk

Ken Kirk
Assistant Executive Director

Enclosure

ASSOCIATION OF METROPOLITAN SEWERAGE AGENCIES

Comments on EPA Future Funding Study
April 1984

The study being conducted by the U.S. Environmental Protection Agency on the Federal role in promoting self-sufficiency in the construction, operation and eventual replacement of wastewater treatment facilities instructs commentors to operate within several constraints. However, a program structured within these constraints would not meet the goals of the Clean Water Act, fishable, swimmable waters, in any reasonable timeframe. The municipal compliance deadline of 1988 would become meaningless. On the other hand, a program could be structured within the budgetary parameters sought by the current administration which would achieve both the goals of water quality and of compliance by major municipal dischargers.

The Association of Metropolitan Sewerage Agencies represents 94 agencies who service major metropolitan areas. As a result, this paper will be directed towards the needs of major cities where significant water quality problems exist and where the construction grants program can therefore have the most significant beneficial impact.

Member agencies are represented in AMSA by the managers of the wastewater treatment facilities, the people actually responsible for treating the wastewater of over half the sewered population of the United States. These agencies are the parties who apply for and receive construction grants assistance under the Clean Water Act. They are the ones actually responsible for achieving the goals of the Act. The success of the program depends not on federal or state bureaucracies, but on whether the local wastewater treatment agencies are able, within the resources available to them, to effectively control water pollution, stream-by-stream and plant-by-plant.

The first constraint defined by EPA in requesting papers for the study is the current U.S. tax code. At present, the tax code allows a private sector investor to construct a wastewater treatment facility with industrial development bonds, and allows the municipality to lease the facility back to operate the facility. The only "privatization" project initiated so far has utilized this scheme.

While AMSA supports the continued availability of this financing mechanism, along with any other mechanism involving the private sector, the association cautions the agency against the use of this type of financing for the vast majority of major urban projects. The size, complexity and high cost of these projects, coupled with federal pay back requirements in leaseback situations, makes this financing alternative much less attractive and viable in such cases.

In addition, this approach faces stiff opposition from the Senate Finance Committee and the House Ways and Means Committee. And the Administration itself, through the U.S. Treasury, has indicated that it, too, opposes the continued availability of IDBs for this purpose. Despite the repercussions such restrictions would have on privatization and its role in future self-sufficiency of wastewater treatment facilities, EPA has not taken a stand on the revisions being proposed to the tax code.

The study's parameter of the current tax code is meaningless in the face of the probability that the code will be revised to restrict or prohibit use of private sector funding alternatives for wastewater facility construction.

The second parameter of the future funding study is the Clean Water Act as amended in 1981. In pulling back from the earlier level of federal commitment, these amendments made the following significant changes: eliminated from funding eligibility major sewer rehabilitation, new collector sewers, and control of combined sewer overflows or storm water; eliminated advance funding for Step 1 (planning) and Step 2 (design) work; reduced the federal share from 75 percent to 55 percent (or lower at a Governor's discretion); and eliminated grant funding for reserve capacity. The amendments also emphasize that priority in granting federal assistance should go to those projects which the states believe will result in the greatest improvements in water quality.

The restrictive amendments detailed above, however, have no link with potential water quality benefits. In the case of combined sewer overflows, there are demonstrated cases where the most significant improvements in water quality would result from their control. Funding eligibility for CSOs should be based on the cost effectiveness and need for the project to meet water quality objectives. Eliminating the CSO needs category fails to recognize the primary objective of the construction grants program, meeting clean water goals, and more importantly, places local officials in the unenviable position of having to explain backlogged basements to irate citizens who approved substantial bond issues to solve a water quality problem.

The reduction in federal share and eligibilities did not, from the municipal perspective, reduce the level of needs. Rather, it resulted in a shift of needed construction funds from the federal to the local level. The law did not correspondingly shift the requirements of what facilities would be needed to comply with the law. Accordingly, any study of the program that arbitrarily limits the scope of review in this fashion is not in the best interests of water quality.

The third parameter is a cap in potential federal financial investment of $37 billion. AMSA has no quarrel with this parameter, provided EPA is serious about asking for this level of funding in the future and provided that the program is structured to enable the large metropolitan agencies to meet the enforceable requirements of the act.

Additional funding, and a revised grant distribution system to better target grant funds, are necessary to assure that large metropolitan sewerage agencies meet the enforceable requirements of the Clean Water Act.

A survey of AMSA members' construction needs indicates that the program, as currently authorized, will not enable the major metropolitan cities to complete necessary projects in a timely fashion. AMSA member funding needs, broken out by state and by year the sewerage agency anticipates receipt of federal funds, highlights this problem (Attachment A). When these needs are compared to the state's allocation under $2.4 billion, the anticipated funding for AMSA members alone in many states far outstrips available funds.

The problem is made particularly acute by the fact that the big cities in general do not receive a share of their state's allocation in proportion to their percentage of the state's population or needs. In other words, while a given city may represent half of a state's needs, which determined that state's allocation, there may be no subsequent correlation in the receipt of an equivalent share of grant funds.

Local communities are trying to meet the clean water goals of the federal law, but are severely constrained by a shortage of funds. In February 1983, AMSA held a conference titled "Financial Management: Towards a Self-Sustaining Utility", at which many innovative and traditional methods of financing were discussed. A copy of these proceedings is attached. Many of these methods are in full use, but the problem is that in many communities, the enormity of the task remaining still greatly outstrips the financial capability of the local community. It can be argued that rates must be increased to where sewerage agencies are self-sustaining, but if this is to be done, it must be phased in gradually. And, the impact of such increases has, in many communities, yet to be studied.

The preliminary results of AMSA's 1983 Needs Survey (Attachment B) shows total remaining needs (federal and non-federal shares) for all needs categories of $15.5 billion. If the projected needs of AMSA members not included in the preliminary results are factored in, total remaining needs would be just over $20 billion. At a funding level of 55 percent, the federal exposure would be approximately $11 billion; at 75 percent, it should be roughly $15 billion.

Alternative targeting options for assisting large cities in meeting the enforceable requirements of the Act include approaches based on a "Separate Track", a "Two-Tiered Needs Allocation" process, and the establishment of a "Administrative Discretionary Fund".

The "Separate Track" approach would target funds to areas where significant water quality benefits would be achieved. The separate track would be funded based on the specific needs established by the certified agencies. If Congress chose not to appropriate adequate funds for this track, available funds would be allocated on a priority basis. Separate track would also allow certified agencies to develop their construction plans based on where water quality would most effectively be achieved. This could be in any needs category.

The "Two-Tiered Needs Allocation" targeting approach would maintain the existing priority setting and allocation processes with regard to the funding base of $2.4 billion and 20 percent of any funds appropriated above the base. The remaining 80 percent of appropriated funds would be allotted to the states to meet the needs of major metropolitan agencies with a service population of 200,000 or more. For the purpose of this allotment, a state's big city needs would include only those projects that would not otherwise receive adequate funding through the normal priority system, i.e., states would have to make these additional funds available only to supplement, not supplant, monies which big cities would receive under the $2.4 billion funding level.

Under the "Administrative Discretionary Fund" approach, the base funding level of $2.4 billion plus 20 percent of any additional funds would be allotted to the state based on existing law. The remaining funds would be set aside in a discretionary fund from which the administrator would fund the needs of major metropolitan agencies with a service population of 200,000 or more. Multi-year construction

projects approved in any one year would receive priority with respect to funds appropriated in any subsequent year.

Whatever funding strategy EPA ultimately arrives at, it must be coordinated with enforcement policy. Achievement of municipal compliance is strongly favored by AMSA, but a policy could not be supported which would result in an even greater financial burden on the local community. Facilities cannot be capitalized and constructed in unreasonable, unworkable timeframes simply by decree. A treatment agency should not be penalized for noncompliance when circumstances beyond its control, and not an unwillingness to proceed to the best of its abilities, are responsible. This is particularly true as the federal government seeks to curtail its financial commitment to the municipal program and as many of the regulatory and compliance standards are being revised.

AMSA Needs Survey
(Dollars in Thousands)

Attachment "A"

State	Nbr. of Projects	Nbr. of Agencies	1984 State Allotment Based on $2.4 Billion	1984	1985	1986	1987	1988	1989	1990	Beyond 1990	Unknown	Ongoing
Alaska	5	1	14,642	27,315	13,709	9,654	0	0	0	0	0	0	0
Alabama	0	1	27,355	0	0	0	0	0	0	0	0	0	0
Arkansas	1	2	16,003	0	0	0	0	0	0	0	0	30,000	0
Arizona	5	1	16,524	12,300	104,100	0	0	77,000	0	0	0	0	0
California	73	9	174,964	229,151	78,784	88,682	725,018	138,349	0	0	108,378	594,260	0
Colorado	10	2	19,569	17,479	21,869	0	2,371	0	5,909	0	0	0	0
Connecticut	3	1	29,969	300	200	65,000	0	0	0	0	0	0	0
Washington, DC	2	1	11,916	28,085	96,254	0	0	0	0	0	0	0	0
Florida	6	2	82,577	800	53,593	0	0	0	0	0	0	0	0
Georgia	16	1	41,362	15,567	25,738	21,255	0	54,484	0	0	0	0	0
Hawaii	51	1	18,948	0	21,189	11,879	17,323	20,096	8,697	5,924	94,327	0	0
Idaho	7	1	11,916	3,200	3,200	1,600	5,000	2,000	0	7,000	16,000	0	0
Illinois	59	2	110,643	28,683	34,141	1,360	985	744	944	0	0	2,200,429	0
Kansas	0	1	22,062	0	0	0	0	0	0	0	0	0	0
Kentucky	16	1	31,135	12,314	16,392	54,954	75,160	63,844	30,436	17,600	243,940	0	0
Louisiana	7	1	26,892	4,946	0	9,800	0	2,500	0	0	0	0	0
Maryland	37	2	59,168	22,620	150,199	31,730	161,760	75,960	0	0	161,998	20,700	500,310
Massachussetts	0	1	83,060	0	0	0	0	0	0	0	0	0	0
Michigan	6	2	105,191	35,938	28,000	0	0	0	0	0	0	0	0
Minnesota	21	2	44,964	0	78,700	52,600	29,400	0	0	0	0	0	0
Missouri	15	2	67,817	0	32,480	43,230	43,650	43,440	43,050	41,800	159,700	0	0
Nebraska	6	1	12,513	9,500	7,700	20,000	6,700	11,900	0	0	0	0	0
New Jersey	13	4	99,970	11,900	126,000	1,000	140,000	0	0	0	0	246,630	0
New Mexico	8	2	11,916	9,700	0	10,000	8,000	90,000	7,000	43,000	0	0	0
New York	22	4	271,436	57,500	185,000	70,000	40,000	45,000	25,000	20,000	0	239,000	0
North Carolina	8	2	44,151	17,357	6,944	5,285	20,266	0	0	0	0	0	0
Ohio	80	6	137,721	25,250	158,913	359,719	66,405	60,750	21,250	0	500,110	48,892	0
Oregon	4	1	27,636	0	0	0	0	35,000	0	35,000	10,000	10,000	0
Pennsylvania	21	2	96,906	38,736	135,224	25,200	0	0	0	0	0	0	0
Rhode Island	3	1	16,200	1,750	0	0	0	0	0	0	0	600	0
Tennessee	15	3	35,537	0	0	0	12,892	16,450	0	0	0	168,187	0
Texas	22	6	92,943	258,819	214,990	53,938	7,282	0	111,247	0	0	0	0
Utah	2	2	12,890	11,000	0	0	87,000	0	0	0	0	0	0
Virginia	6	2	50,067	0	3,080	0	25,000	0	121,500	0	0	0	0
Washington	13	2	42,542	0	102,041	4,105	257,502	1,313	1,693	17,353	0	0	0
Wisconsin	17	2	66,137	3,500	0	0		0	0	541,867	2,715,366	0	0
Total			2,035,242	883,710	1,798,440	940,991	1,731,714	738,830	376,726	729,544	4,009,819	3,558,698	500,310

Attachment "B"

1983 AMSA Needs Survey

Needs Category
(Dollars in Thousands)

Year	I	IIA	IIB	IIIA	IIIB	IVA	IVB	V	VI	Total
1983	$ 24,705	$ 0	$ 0	$ 0	$ 75,000	$ 4,850	$ 16,937	$ 0	$ 0	$ 121,492
1984	693,430	44,550	83,159	9,066	76,348	45,666	58,565	4,188	3,700	1,018,672
1985	1,101,085	342,716	218,049	63,164	22,869	13,158	194,011	305,759	700	2,261,511
1986	440,248	64,465	114,127	37,912	67,234	17,425	375,015	84,400	0	1,200,826
1987	432,698	40,175	125,085	77,305	49,361	16,599	148,436	20,000	2,837	912,496
1988	384,504	47,000	164,923	62,674	11,440	152,076	158,066	136,454	11,900	1,129,037
1989	161,173	80,861	78,786	25,016	0	16,111	52,479	0	0	414,426
1990	644,701	15,000	0	20,098	0	10,620	17,522	0	0	707,941
Beyond 1990	1,338,578	0	161,998	6,084	162,170	90,821	1,428,084	901,628	0	4,089,363
Unknown	213,031	566,234	295,981	2,260	53,057	750	85,375	2,163,570	233,475	3,613,733
Total	$5,434,153	$1,201,001	$1,242,108	$303,579	$517,479	$368,076	$2,534,490	$3,615,999	$252,612	$15,469,497

George P. Ames
Acting Chief, Policy and Guidance Branch (WH-595)
Office of Water Program Operations
Office of Water, EPA
401 M Street, SW.
Washington, D.C. 20460

RECEIVED FRD APR 5 1984

Dear Mr. Ames:

I am following with great interest the charting of the future course of the construction grants program. Past changes in the program have distrupted the development of wastewater facilities in many rural areas. It is encouraging to see that your study of the federal role in municipal wastewater treatment is taking into account other funding sources.

I have enclosed a paper entitled Appropriate Facility Design which identifies major issues that effect the orderly development of wastewater facilities in rural areas. If I can be of further assistance, please call (703) 978-8834, or write: Glendon D. Deal 4909 Briar St., Fairfax, VA 22032.

Sincerely,

Glendon D. Deal

Glendon D. Deal, P.E.

Attachment

Appropriate Facility Design

The entire nation has learned that making this country's waters fishable and swimable was not as easy as believed when the Clean Water Act was signed by the President in 1972. Vast resources of both money and manpower have been utilized in the effort. The Act was ammended in 1977 and 1981 to among other things make the Construction Grants Program (CG) more appropriate for small rural communities. I have first hand experience with many small communities that were participating in the CG program. It is from this prospective that I offer my comments.

Additional grant funding to complete the clean-up of the nation's waterways is getting increasingly harder to obtain, because of budget deficits and other competing requests. Some say that grant monies do not encourage self dependency or effective use of the funding available. I believe appropriate facility design is the major area within the CG program for small communities which is ripe for improvement. In other words, before seeking more funds or cutting back the program, consider ways to make the current funding do more.

My experience with the CG program in small communities has been plagued with ultra-conservative facility designs. This has been attributed to several parties: 1) Design engineers, 2) State regulatory officials, 3) Federal funding agencies and 4) Facility owners. The following comments are not meant to be critical of any particular group, but I think they are typical of the issues that hinder appropriate facility design.

Design engineers are concerned about their professional liability and amounts allowed for engineering fees. Engineers tend to recommend mechanical treatment plants and conventional collection systems for small communities because they are most familiar with those technologies and the use of these technologies are quickly approved by State and Federal regulatory agencies. When in most cases some combination of lagoons, land treatment and alternative collection systems would be more appropriate. These same enginners are not rewarded for providing the best design, usually one that saves money, because their fees are related to project cost. The easiest route is to use a conventional design.

State regulatory agencies are usually very conservative in setting design guidelines. For example, most states have adopted the Ten State Standards. These standards have become the gospel that shall not be violated. It would seem that those persons that had enough foresight to recognize the need for design guides when they developed the Ten State Standards would be disappointed to see how these quides are being used to prevent the use of sound engineering judgment. Why is it acceptable to increase a collection line serving 40 homes from 8 to 12-inch diameter in order to lay the line on a flatter slope? Why is the maximum manhole spacing 400

feet? Why must design engineers use a wastewater flow rate of 100 gallons per capita per day? The calculation of maximum velocities, the availability of high pressure cleaning equipment and actual experience with operating systems have shown these and other standards to be inappropriate for small rural communities. A state pollution control division director when asked why only secondary effluent could be applied to the land may have put the situation in prespective when he said, "I have two years to go until retirement and we are not going to do anything that may cause a problem."

Federal funding apencies should question design engineers and state agencies when the facilities being proposed are not consistent with actual experience. Unfortunately, most funding decisions are made without the benefit of knowing the actual costs or performance of similiar facilities. Extrapolation of urban data to project either the cost or performance of facilities in small rural communities is dangerous and leads to many errors. The actual information does exist.

Owners apply influence to obtain the maximum amount of grant funding. They want to obtain a first class facility while it only costs them 25 cents on the dollar. However, the operating cost associated with a facility provided by grant dollars is often a larger financial and managerial burden than small rural communities can bear. The end result being that many facilities funded by the CG program are not operating at their potential.

Those familiar with the needs of rural areas would be the first to say that the goals of the Clean Water Act will not be met without some form of Federal assistance. This study of strategies for that Federal assistance provides an excellent opportunity to establish methods of encouraging the appropriate design of wastewater facilities in small rural communities.

WILLIAM P. FERGUS, P.E.
DIRECTOR

APR 18 1984
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April 11, 1984

Mr. George F. Ames
Acting Chief
Policy and Guidance Branch (WH-595)
Office of Water Program Operations
Office of Water,
U.S. Environmental Protection Agency
401 M Street, SW
Washington, D.C. 20460

RE: Federal Role in Municipal Wastewater Treatment; Study
Federal Register Feb. 16, 1984
Pages 6009 - 6012

Dear Mr. Ames:

Agencies designated by the Governor and approved by Ohio and USEPA to implement provisions of the Clean Water Act within Mahoning and Trumbull Counties, Ohio form a group known as the Areawide Water Quality Policy Advisory Committee. We represent the management structure to implement improvements developed in the 208 Areawide Water Quality Plan as prepared by the Eastgate Development and Transportation Agency and identified within our specific 201 Facility Plans. A list of membership will be found as Attachment I. Our committee has an intense concern, both programmatic and financial, for the future of the Construction Grants Program and all viable alternatives to be considered in your study for innovative financing.

The majority of our population and economic base is geographically situated along the area tributary to the Mahoning River. Communities responsible for maintaining and improving water quality through NPDES point source discharge along the River are listed below:

COMMUNITIES	1980 CENSUS POPULATION
Trumbull County	241,854*
City of Warren	56,629
City of Niles	23,088
City of Girard	12,517
City of Newton Falls	4,960
Village of McDonald	3,744
Mahoning County	289,487*
City of Youngstown	115,427
City of Struthers	13,624
City of Campbell	11,619

* Includes cities and villages population within County.

EDATA
EASTGATE DEVELOPMENT AND TRANSPORTATION AGENCY
180 JAVIT COURT, YOUNGSTOWN, OHIO 44515
216 / 793-2202 YOUNGSTOWN
378-1921 WARREN

COMMUNITIES (CONTINUED)	1980 CENSUS POPULATION
Village of Lowellville	1,558
City of Sebring	5,078
Village of Beloit	1,093

Several communities within the two county area, not tributary to the Mahoning River, also have projects under study within the Construction Grants Program. They are as follows:

COMMUNITIES	1980 CENSUS POPULATION
City of Hubbard	9,245
City of Cortland	5,011
Brookfield Township	10,836
Village of New Middletown	2,195

Our Valley was once a strong national industrial complex with basic steel facilities owned and operated by U.S. Steel, Republic Steel Corporation and the Jones and Laughlin (Youngstown Sheet & Tube) Company occupying quantum amounts of real estate along the river from Warren to the Ohio-Pennsylvania State line. As principal employers, these companies provided sufficient tax dollars for communities to invest in required and necessary infrastructure improvements. Today, many of these larger facilities have been closed along with the associated smaller support industries. Those that have remained are operating at marginal capacity with a reduced work force. Annual average unemployment for 1983 in Mahoning and Trumbull Counties has been listed at 16.8 and 16.4% respectively.

Limited financial resources available to local governments are a result of many factors including, a high percentage of unemployment, citizens on fixed incomes, declining populations, reduced federal commitments and lack of State grant funding. The above are major constraints retarding implementation of mandated water quality improvements in this area of Northeastern Ohio. Every community listed above has invested local capital to match federal grants for planning, design or construction of wastewater conveyance and treatment facilities. Most projects were initiated with the passage of Public Law 92-500 and requirements for secondary treatment to meet NPDES permit standards. It was the belief of our communities that since this was a top priority of Congress in 1972, they would remain committed to support local efforts to implement mandated water quality improvements.

Within the constraints of our current local economy, every community would have difficulty generating capital, besides facing strong resistance from the electorate to expend scarce financial resources to meet the twenty five percent eligible local cost for construction of wastewater treatment facilities. Now, facing a forty five percent share, it appears an impossible task for our local

EDATA

governments to generate support or funding to construct the improvements developed in their respective Facility Plans. Should conditions be maintained at the forty five (45%) percent funding level, reduced, or mandated local self-sufficiency, it is feared that federal and local resources expended to generate plans and/or design will rest as unused documents on shelves and all intent and purposes to construct wastewater facilities battled in the courts.

The lack of structured communication between the State EPA, USEPA and local units of governments also appears to be a problem within the existing program. It is understandable that any one community may be required to meet with State or Federal EPA officials on a specific project. However, there are situations, such as changes in regulations or policy that generate differant interpretations at the federal, state and local level. Presenting this type of information at a meeting of all implementing agencies within the state at one central location or even several central locations, such as has been OEPA's practice with the Draft Project Priority Lists, does not appear to generate the local input or support for the program. Working with smaller groups, such as our Water Quality Policy Advisory Committee, within areawide water quality planning areas would increase benefits of the program. Direct contact may eliminate misunderstanding and confusion and expedite projects to constructions. Many of our concerns regarding the Construction Grants Program are generic to the 208 areawide water quality planning region. This open dialogue would benefit all parties in the development of State Priority Lists for the Construction of Municipal Wastewater Treatment Facilities, implementing non-point pollution control measures, identifying alternatives for construction and initiating alternative financing programs. Goodwill would also be enhanced through direct local involvement in the Federal - State decision making process.

Though tardy on the deadline for submission of papers our committee hopes you will consider our input in the development of your study. If your study group has any questions or would wish to meet with our group to further define local concerns, please contact this writer at the address below, or Mr. James T. Wells, WQPAC Secretary, at EDATA.

Respectfully;

William M. Coleman, Chairman
Areawide Water Quality Policy Advisory Committee
c/o Office of the Mahoning County Sanitary Engineer
761 Industrial Road
Youngstown, Ohio 44509
Phone: (216) 793-5514

WMC/jtw

enclosures-2

cc: Designated Management Agencies w/o enclosures
Senator John Glenn
Senator Howard M. Metzenbaum

(continued over)

DESIGNATED MANAGEMENT AGENCIES - COUNTY OF MAHONING

Mr. Joseph F. Catullo, P.E. Mahoning County Sanitary Engineer 761 Industrial Road Youngstown, Ohio 44509		
Mr. William M. Coleman Office of Mahoning County Sanitary Engineer 761 Industrial Road Youngstown, Ohio 44509		
Mr. Andrew D'Apolito Office of Mahoning County Sanitary Engineer 761 Industrial Road Youngstown, Ohio 44509		
Mr. Michael Fitts, P.E. Mahoning County Engineer 940 Bears Den Road Youngstown, Ohio 44511		
Ms. Marilyn Sferra Office of Mahoning County Engineer 940 Bears Den Road Youngstown, Ohio 44511		
Mr. Paul Cramer Mahoning County Board of Health 21 West Boardman Street Youngstown, Ohio 44503		
Ms. Betty Sekula, Director Mahoning County Planning Commission 21 West Boardman Street Youngstown, Ohio 44503		

ATTACHMENT I

EDATA - AREAWIDE WATER POLICY ADVISORY COMMITTEE LETTER TO
MR. GEORGE F. AMES
APRIL 11, 1984

DESIGNATED MANAGEMENT AGENCIES - CITIES AND VILLAGES WITHIN MAHONING COUNTY

Mayor Patrick Ungaro
City of Youngstown
c/o City Hall
Boardman and Phelps Streets
Youngstown, Ohio 44503

Mr. Richard Marsico, P.E.
Deputy Director of Public Works
City of Youngstown
c/o City Hall
Boardman and Phelps Streets
Youngstown, Ohio 44503

Mr. Thomas Cardarelli
Youngstown Wastewater Treatment Plant
725 Poland Avenue
Youngstown, Ohio 44502

Mayor Howard Heldman
City of Struthers
c/o City Hall
6 Elm Street
Struthers, Ohio 44471

Mayor James Vargo
City of Campbell
c/o City Hall
351 Tenney Avenue
Campbell, Ohio 44405

Mr. Joseph Hudak
Campbell Wastewater Treatment Plant
4200 Wilson Avenue
Campbell, Ohio 44405

Mayor Alfred Russo
Village of Lowellville
Mayors Office
240 East Liberty Street
Lowellville, Ohio 44436

Mayor J. Michael Pinkerton
City of Sebring
135 East Ohio Avenue
Sebring, Ohio 44672

Mayor Charles N. McNatt
Village of Beloit
c/o Village Hall
Beloit, Ohio 44609

DESIGNATED MANAGEMENT AGENCIES - COUNTY OF TRUMBULL

Mr. George Libertin, P.E.
Trumbull County Sanitary Engineer
7500 Anderson Road N.E.
Warren, Ohio 44484

Mr. Edward Ryser, P.E.
Trumbull County Engineer
650 North River Road N.W.
Warren, Ohio 44483

Mr. James Green
Office of Trumbull County Engineer
650 North River Road N.W.
Warren, Ohio 44483

Mr. Edward Kutevac, Director
Trumbull County Planning Commission
Trumbull County Administration Bldg.
160 High Street
Warren, Ohio 44482

Dr. Loria
Trumbull County Board of Health
Trumbull County Administration Building
160 High Street
Warren, Ohio 44482

DESIGNATED MANAGEMENT AGENCIES - CITIES AND VILLAGES WITHIN TRUMBULL COUNTY

Mayor Daniel Sferra
City of Warren
c/o City Hall
391 Mahoning Avenue N.W.
Warren, Ohio 44483

Mr. Henry Angelo
Superintendent
Warren Wastewater Treatment Plant
2323 Main Avenue S.W.
Warren, Ohio 44481

Mayor Joseph Melfi
City of Girard
100 West Main Street
Girard, Ohio 44420

Mr. John Latell, P.E.
Engineer - City of Girard
100 West Main Street
Girard, Ohio 44420

Mayor Robert Irwin
City of Newton Falls
North Canal
Newton Falls, Ohio 44444

Mr. Hiram Watkins
City Manager
City of Newton Falls
North Canal
Newton Falls, Ohio 44444

Mr. Dennis Kirkland
Chief Operator
Newton Falls Wastewater Treatment Plant
Warren Road
Newton Falls, Ohio 44444

Mayor William Colletta
City of Hubbard
33 West Liberty Street
Hubbard, Ohio 44426

DESIGNATED MANAGEMENT AGENCIES - AGRICULTURAL NON-POINT MAHONING AND TRUMBULL COUNTIES

Mr. Cliff Morrision
Mahoning County Soil and Water
Conservation District
7574 Canfield-Columbiana Road
Canfield, Ohio 44406

Mr. Dave Kenreich
Mahoning County Soil and Water
Conservation District
10670 Lisbon Road
Canfield, Ohio 44406

Mr. Gary Grey
Soil Conservation Service
Mahoning County
525 North Broad Street
Canfield, Ohio 44406

Mr. George Sharec
Trumbull County Soil and Water
Conservation District
3523 South Canal Extension
P.O. Box 230
Newton Falls, Ohio 44444

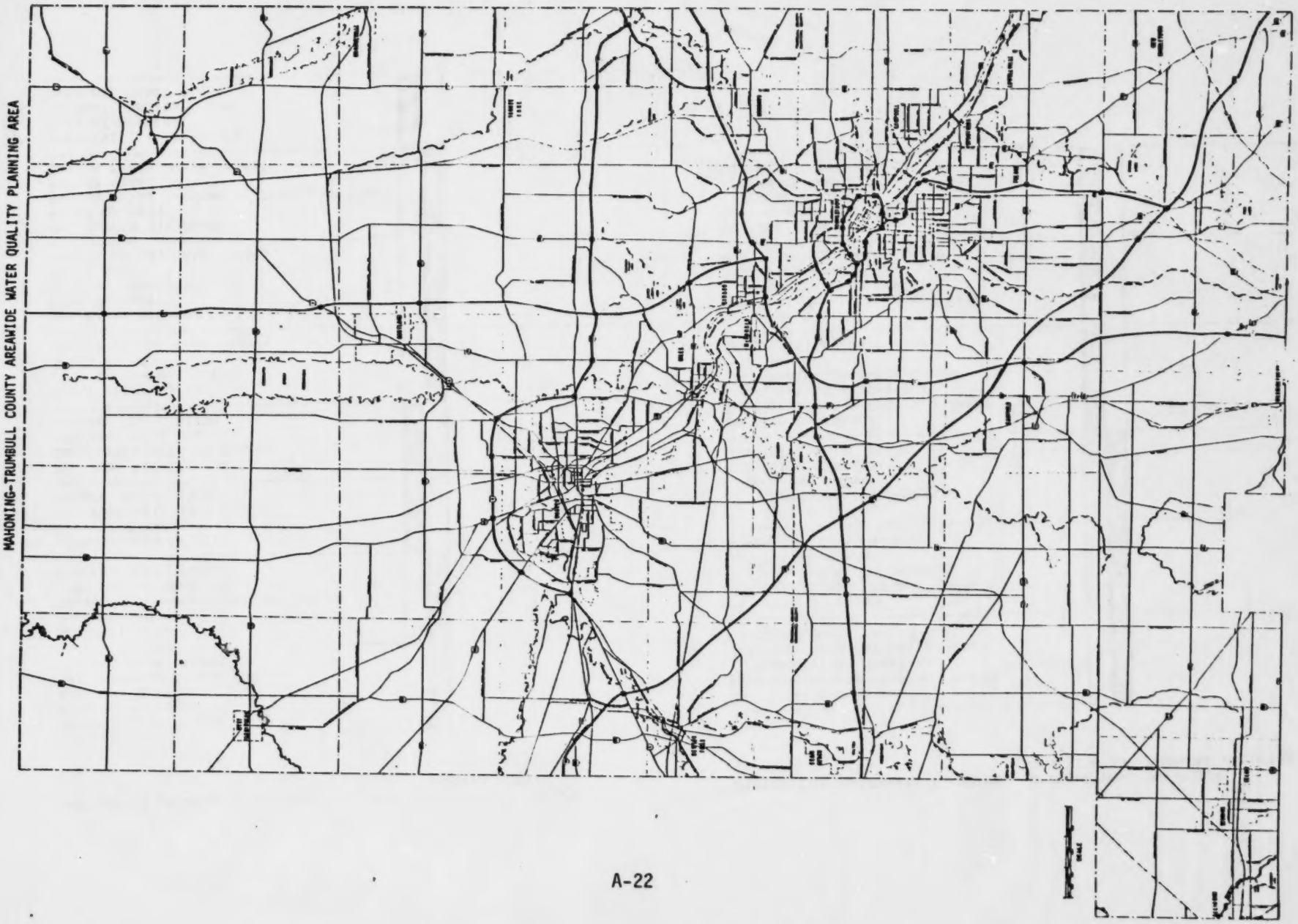
Mr. Wade Bascom
Trumbull County Soil and Water
Conservation District
5931 Park Road
Leavittsburg, Ohio 44430

Mr. Dan Ross
Soil Conservation Service
Trumbull County
188 North Mecca
Cortland, Ohio 44410

ATTACHMENT 2

EDATA - AREAWIDE WATER POLICY ADVISORY COMMITTEE LETTER TO
MR. GEORGE F. AMES
APRIL 11, 1984

MAHONING-TRUMBULL COUNTY AREAWIDE WATER QUALITY PLANNING AREA



The Town of Laurel

INCORPORATED 1883
OFFICE OF MAYOR & COUNCIL

P. O. BOX 210
LAUREL, DELAWARE 19956
(302) 875-2277

March 14, 1984

RECEIVED
FRD
MAR 17 1984

Mr. Charles Mooar
Office of Water Program Operations (WH-595)
Environmental Protection Agency
Washington, D. C. 20460

Dear Mr. Mooar:

In response to EPA's request for comments concerning the future role of the Federal Government in municipal wastewater treatment facilities, I submit the following.

The cost of adequate wastewater treatment facilities is astronomical - in most cases the systems are truly needed, however, the economic base of the community can barely support general operating expenses let alone capital investment in public works. In the small towns and communities that I am familiar with, the general infrastructure is literally falling apart. Streets, public utilities, and other capital projects are let go in order to meet the current problems of payrolls and day to day operating expenses. Should it be left up to these communities to totally finance future improvements in the wastewater treatment facilities, then, in my opinion, we will have large scale non-compliance and/or towns filing for bankruptcy.

In the past twenty (20) years I have seen a marked improvement in our nations natural stream, rivers and bays. This is a direct result of a positive involvement by the Federal Government in improving and controlling the wastewater treatment facilities in the United States. Do not reduce this proper and worthwhile involvement because of its expense. I believe that the EPA's wastewater treatment facility program has one of the best records dollar for dollar. Additionally, the unquantifiable value that we place upon our quality of life must be weighted into the benefits. As the United States matures in its economic and industrial life cycle, the quality of life will become even more valuable then it is today. The United States needs to continue working at maintaining an environment that has a positive value upon its citizens quality of life.

In addition to supporting EPA's current role in wastewater treatment projects, I offer some suggestions and or ideas for further thought.

To reduce the cost on projects, set up packaged systems that could be assembled like "building blocks", using interchangeable components. With such a packaged system, EPA and the communities involved could realize savings in both engineering and construction costs.

Additional spending in research should be directed at designing "packaged systems". Other projects with merit should be those that can reduce the initial cost and the future operating expenses of wastewater treatment. The best facility is one that is inexpensive to operate and slow to wear out.

Should I be of any additional service, please feel free to contact me.

Sincerely,

MAYOR & COUNCIL OF LAUREL

Frederick Hertes
Grants Administrator

FH:bw

cc - Senator Roth
Senator Biden
Congressman Carper

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

March 30, 1984

Mr. Jack E. Ravan
Assistant Administrator for Water
U.S. Environmental Protection Agency
401 M. Street, S.W.
Room 1035, East Tower
Washington, D.C. 20460

Re: EPA's POTW Funding Study

Dear Jack:

As a result of my participation on the Management Advisory Group (MAG) Task Force on the POTW Funding Study, I have had an opportunity to be kept abreast of developments during the course of the study.

Attached for your information is a set of recommendations which I developed for consideration by the MAG Task Force for converting the Construction Grants Program over a reasonable transition period to a low-interest or no-interest loan program. While the details of such a proposal would certainly have to be ironed out, in our view such an approach would maximize the efficiency of the Federal program while providing increased flexibility to the States to administer the program. In addition, it would allow the Federal government to gradually relieve itself of the responsibility of funding municipal wastewater projects and allow the States and local governments to become self-sufficient in this area.

I hope that you will find this concept promising and consider it in the development of EPA's POTW Funding Study. I will be happy to provide any additional information or to discuss this in greater detail at your convenience.

Sincerely,

Leonard

J. Leonard Ledbetter
Director

JLL:jodm

cc: Ms. Robbi Savage

RECOMMENDATIONS FOR A NEW FEDERAL/STATE
FUNDING MECHANISM FOR MUNICIPAL WASTEWATER FACILITIES

The Construction Grants Program should be continued as is for a reasonable transition period during which time States and local governments would be able to put into place alternate funding mechanisms and to take appropriate measures to be able to implement the new Federal funding mechanism.

1: The Construction Grants Program would continue as is for a four-year transition period (FY 1985 through FY 1988). However, during this transition period, States would have the option of placing up to 100% of their construction grants allocation into a State Loan Bank in order to provide low interest or no interest loans to communities for municipal wastewater treatment projects. Eligibilities through the loan program would be the same as those identified for construction grants funding, including the Governor's discretionary funds allowed by the 1981 Amendments to the Clean Water Act. This would allow the States which do not currently have the mechanism in place to provide such loans a period of four years in order to establish such a mechanism.

2: Beginning in FY 1989, the States would be required to place at least 20% of their construction grant allocation into a State Loan Bank. Annually thereafter the States would be required to increase this percentage by an additional 20% of the State allocation until FY 1993 at which time the amount required to be placed into the State Loan Bank equals 100% of the State allocation. In each year beginning in FY 1989, the remaining portion not placed into the State Loan Bank could be utilized either for construction grants or for additional loans through the State Loan Bank. Those States which have not established an appropriate State Loan Bank by FY 1989 would only be eligible for that portion of their allocation which could be used for construction grants until such time as an appropriate State Loan Bank was established. That portion of any State's allocation which is forfeited would be made available to other States which qualified to receive their total allocation.

3: The allocation formula for distribution of federal funds to the States would remain the same. States deciding to implement the loan program earlier than required would benefit through the earlier use of monies from the loan paybacks.

4: All of the funds allocated by the Federal government in Items 1 through 3 above would be required to be used for eligible categories as currently identified, with the Governor's discretion as previously discussed. However, funds which are recovered through re-payment of the loans could be made available for other categories of funding for publicly owned treatment works at the State's discretion.

5: Federal funding of this program should be provided through an annual appropriation of $2.4 billion adjusted annually for inflation over a 14-year period (F.Y. 1985 through F.Y. 1994) in order to meet the projected needs of $35 billion..

6: All municipalities eligible for Federal funding under this program should be placed on a compliance schedule developed consistent with the guidance in EPA's National Municipal Policy.

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

Louisville and Jefferson County
Metropolitan Sewer District
400 South Sixth Street
Louisville, Kentucky 40202
502 587 0591

MSD

April 2, 1984

Mr. George F. Ames, Acting Chief
Policy and Guidance Branch (WH-595)
Office of Water Program Operations
Office of Water, EPA
401 M Street, SW
Washington, D.C. 20460

RECEIVED
FRD
APR 5 1984

Re: Study of Federal Role in
Municipal Wastewater Treatment

Dear Mr. Ames:

The Louisville and Jefferson County Metropolitan Sewer District (MSD) has submitted to the Association of Metropolitan Sewerage Agencies (AMSA) its total estimated funding needs for wastewater treatment facilities for preparation of a paper to be submitted by AMSA on behalf of its member agencies in regard to the referenced study. MSD supports AMSA's position and urges the study group to devote particular attention to AMSA's comments.

Considering the needs and capabilities at the local level, MSD believes there is no viable alternative to federal funding assistance at its present level if construction of municipal wastewater treatment facilities needed to meet the requirements of the Clean Water Act is to be accomplished. The study group which is to determine the future federal role in municipal wastewater treatment must understand that money is not available in any form at the local level as a substitute for federal assistance, and, without substantial federal assistance, construction will simply not occur.

Very truly yours,

C. A. Neumayer
Acting Executive Director

CAN/jkc

cc: Association of Metropolitan Sewerage Agencies

Louisville and Jefferson County
Metropolitan Sewer District
400 South Sixth Street
Louisville, Kentucky 40202
502 587 0591

MSD

May 31, 1984

Ms. Alice Klavans
Policy and Guidance Branch
WH-595 - Room 1125 East Tower
Environmental Protection Agency
401 M Street, SE
Washington, D.C. 20036

Dear Ms. Klavans:

Attached are my comments concerning the proposed study on Federal and non-Federal roles in financing municipal wastewater treatment. I am sorry I was unable to attend the public hearing. Mr comments are derived from experience as City Engineer in Hampton, Va., Commissioner of Public Works in Lexington, Ky., and Executive Director of Louisville MSD. In all situations, I am or was responsible for Construction Grants and management of sewer facilities. I hope the comments are useful to you. If there is any other way I might participate or help with the study, please advise. I obviously have strong opinions!

I would apprecaite receiving the information packet distributed at the public hearing and being put on the mailing list for any other communications.

Sincerely,

Gordon R. Garner
Executive Director

GRG/jkc
Attachment

"An equal opportunity employer M/F/H/V"

COMMENTS
ON
EPA STUDY OF FEDERAL, STATE AND LOCAL
ROLES IN MEETING CLEAN WATER ACT REQUIREMENTS

The EPA study of the Construction Grants Program is an issue of major concern to municipalities and public sewer districts throughout the nation. As consumers directly affected by both the "carrot and the stick," i.e., the Construction Grants Program and the NPDES municipal enforcement effort, the study recommendations could have dramatic consequences for the future. It seems from published statements that the administration is committed to pursuing a course which would decrease the level of federal involvement and that the study is a tool to facilitate this effort. We hope that this is not the case and submit our comments on the assumption that the study conclusions and recommendations are not preordained.

The relationship and roles of federal, state and local governments in meeting the requirements of the Clean Water Act are complex and sometimes contradictory. Since 1972 the evolution of the Construction Grant Program and Enforcement Program hinged on both experience and changes in philosophy, mostly at the federal level, as four national administrations have grappled with the problems. State and local officials have generally been followers rather than leaders.

The appropriate federal role in financing municipal wastewater treatment should remain the same as that intended in the original Clean Water Act. Although we have seen significant progress, the nation's waters are far from clean. The goals of the 1972 Act intended to clean up the nation's water resources are as valid today as when written. Both the national priority of clean water and federal leadership role intended by Congress remain unchanged; nor is there any public mandate that they be changed. In fact, the public, when asked, consistently supports clean water efforts. The construction grants program is the major tool for attacking water quality problems on a prioritized basis. Without the grants program, the Clean Water Act would have been another toothless tiger. With it, substantial progress has been made.

The Construction Grants Program is a national public works effort second only to the Interstate Highway System, yet there is no talk about increasing local and state roles in constructing and maintaining the interstate system. In fact, the federal role has increased dramatically from the original intentions of Congress. Abandoning the Construction Grants Program now would be equivalent to building half the interstate highway system and then quitting, while expecting state and local government to finish. Cleaning up the nation's waters must have a similar federal funding priority. State and local governments already have major responsibilities, but the commitment to federal leadership and funding must continue if Clean Water Act goals are to be met. Without the strong federal role, the Clean Water Act is doomed to failure and progress to date could quickly be reversed.

There are reasons why this failure is so predictable. First, the states cannot or will not fulfill their environmental responsibilities properly. Very few states provide any significant funding for water projects and most do not adequately fund environmental programs of any sort. Enforcement efforts at the state level are usually token efforts, at best. The political climate does not permit effective water quality enforcement, and programs are generally understaffed and inadequate. In addition, the states are not often motivated to clean up rivers that are boundary situations with other states. Each state will sit back, waiting for another to assume the initiative.

Who is responsible for cleaning up the Ohio River, or the Mississippi or the Chesapeake Bay? Certainly no individual state will assume the role and multistate cooperative agencies have a proven track record of doomsaying while doing nothing. They have no substantive funding or authority. State governments throughout the nation are suffering the consequences of funding cutbacks. Since additional state funds for construction of treatment works are now an unlikely priority, it is most unlikely that states will provide leadership, funding, or enforcement should the federal role be diminished. The only effective club other than a federal court is the leverage provided by the Construction Grants "carrot," which has been both significant and successful.

The fact that local government's role cannot be sufficiently expanded to make up for federal withdrawal or cutbacks is a second reason for predicting failure. Local government's efforts in constructing, operating, and replacing sewage treatment facilities is greatly misperceived. In the funding area, for example, local dollars typically exceed state and federal contributions toward construction and operation of sewer systems. Since the Construction Grants Program started in 1972, the average municipality provided 70-80% of the total dollars spent to construct, operate, and replace municipal treatment facilities. Let's examine Louisville MSD as a typical example for the period from 1972-1983. Local funding compared to federal grants is as follows:

MSD Operating Budget	$184,000,000
MSD/Local Capital	122,000,000
Total Local	$306,000,000
Federal Grants	106,000,000
Local/MSD	74%
Federal	26%

The gross dollar contribution from local sources is three times the federal grant contribution. Other cities can produce similar documentation of significant local funding. In fact, local investment to construct and operate sewer treatment facilities generally is one of the top two or three expenditures in any municipal setting, usually exceeding the amount spent on road construction and road maintenance and refuse collection, while just under that spent for police and fire protection.

Local taxes and sewer use fees have been increased to pay the cost. For example, Louisville MSD increased its sewer rates by 40% - just since 1979! Rate increases, at more than minimum maintenance levels, would be disapproved with revolutionary fevor. At the present time and for the foreseeable future, it is unrealistic to think that the local funding for sewers can increase significantly. The cutback to a 55% federal share will have repercussions not yet envisioned by those responsible. The funding stress will be felt and the local role cannot be dramatically increased to offset the decrease.

Projects will not be built and water quality will not improve with a significantly reduced grant program. The federal court docket cannot support the enforcement that may be required to force complaince. Recent proclamations that compliance will be forced with or without grant funding do not properly anticipate the local "rebellions" likely to result.

For several reasons, EPA water quality efforts have earned low marks. The water quality goals are more expensive, complex, and difficult to achieve than originally envisioned. Mistakes have been made on a grand scale. High technology solutions have proven more expensive and less effective than predicted. Many problems/pollutions exist that were unknown twelve years ago. Talk of revising water quality goals to lower levels of "clean" has provoked a national debate.

The successes of the Construction Grants Program should be more emphasized, but municipalities generally work in "splendid isolation"; successful efforts are not identified or shared in the same way that failures are. Still, the grant/enforcement approach has achieved and forced many positive changes:

1. The local role has increased. Funding responsibility dramatically changes as municipalities build and operate more costly secondary treatment facilities; primary treatment or direct discharge was common twelve years ago.

2. The local role is pretreatment has intensified. Discharge monitoring and pretreatment enforcement are more the rule than the exception for municipalities. Industry and public awareness of toxic and hazardous waste problems is at an all time high. Industry can no longer depend on a sympathetic mayoral ear unless it is making serious efforts at compliance.

3. Funding inequities at the local level have dwindled with the advent of user charge systems requiring that costs be shared "equally." Subsidization of gross polluting industries is much less common than twelve years ago.

4. Almost all municipal treatment plants constructed under the Construction Grants Program provide a much higher level of treatment than their predecessor plants, even though many may not meet NPDES requirements. Pollution levels are decreasing, although not as quickly and dramatically as program planners intended.

A strong and balanced federal role in financing and enforcement of municipal wastewater treatment works should be maintained. A reduced federal role will not automatically result in an increase in state and local roles, but more likely in a significant backsliding in achieving water quality goals and objectives. The local role is more significant than commonly perceived and significant and steady improvement in the local role has occurred because of the balanced grant/enforcement approach.

The federal involvement in water quality must be significant if goals are to be achieved and maintained. Alternatives should be considered to provide long-term funding for water quality programs similar to the Highway Trust Fund. Whatever method is used, the public demands and supports effective water quality solutions. National goals and programs should not be abandoned. A strong federal role is needed and justified by the situation. The protection of the nation's rivers, streams, and groundwater resources requires a strong and coordinated control authority that realistically cannot be provided by state and local efforts. The grants/enforcement programs now in effect should be improved, not abandoned!

There are program alternatives that can be developed that will "foster long-term local self-sufficiency" and "facilitate compliance by municipal wastewater treatment facilities." Change is difficult because issues relating to changes in the program are complex. Special interest groups from all sides make it difficult for change to occur. Good ideas are often twisted. From a municipal perspective the common complaints and/or requests for change are two fold - more money and fewer strings and delays. These complaints require discussion before exploring more constructive alternatives.

Program funding has always been an issue; that is true of any government program at any level. Although desirable, more money for the Construction Grants Program is no panacea. Major issues remain unresolved; combined sewer overflow, for example, would "break the bank" as far as any reasonable increase is concerned. Some program funding has been misdirected, especially when the evaluation criteria are water quality, local self-sufficiency and compliance of municipal facilities. Political pressure to fund "development" projects is a reality at all levels of program management, thus, many interceptor sewer projects have been funded primarily to support new development rather than treatment works to handle existing non-complying discharges. Sewer System Evaluation Studies (SSES) are gathering dust all over the country. The program assumed that cost effective I/I and combined sewer solutions could be funded. The truth is that effective solutions have not yet been found, let alone funded. Millions could have been directed at basic secondary treatment facilities rather than useless studies. (Municipal engineers knew all along that I/I was not going to be so easily resolved. There are still vestiges of those original assumptions concerning SSES and I/I that control many program decisions.)

Program funding is an issue, but of much less concern than the headlines indicate. Cutbacks will hamper progress significantly; complete federal withdrawal would be devastating, but continued funding at present or slightly increased levels would still allow steady progress toward national water quality goals. Existing funds can be much better utilized than they have been in the past.

Program strings and delays are a constant gripe of state officials, consultants, contractors, and local officials. What they are really saying is "Give us the money and leave us alone." Unfortunately, this approach, although popularly supported, would be destructive to national water quality objectives. State and local agendas that have nothing to do with water quality, such as collector sewers and interceptors to serve new developments, would quickly usurp program objectives. The delays usually result from the efforts of federal officials to impose "strings" or conditions on the grant funds. To the extent that some of these delays are due to indecision and "waffling" at the state and federal level, they can be reduced. To the extent

that some of these delays are due to excessive review time due to staff shortages and instability, they can be reduced. To the extent that delays due to negotiating great conditions are required to bring about reasonably uniform water quality improvement in whole river basins, they are absolutely necessary.

There are program alternatives that can and should be considered that will improve local self-sufficiency and foster municipal compliance. Some are very simple, others are more complex. They are listed here in no particular priority, but the study now underway should examine many of these alternatives:

1. There should be long-term commitments to a set level of federal funding that will allow proper planning and prioritization to take place at all levels. Flip-flop funding wastes dollars and promotes inefficiency. The feast and famine approach to Construction Grant Funding has been a real problem at the local and state levels.

2. Establish and enforce better prioritization of existing funds. Interceptors should only be funded for that portion of flow that serves existing populations and eliminates point sources. Collectors should not be funded at all. Treatment works should be funded based on water quality priorities, not community development needs. Reserve capacity should be limited to a reasonable level - perhaps 10%. Anything higher should be locally funded. But plants should be <u>required</u> to be built with a 20-year reserve capacity based on the best planning data available, or designed for logical phased expansion to accommodate future growth.

3. Enforcement strategies should be consistent and fair and allow for the necessary long-term solutions required to attain full compliance. It should also be recognized that full compliance with current NPDES standards is impossible in some situations based on funding and technological realities. Permit criteria need to be realistically re-evaluated based on the current state of knowledge and societal capability. Some things we would like to pretend don't exist, do! We often play games with water quality. Pretreatment standards should be uniformly established and

enforced. Municipalities get very mixed and inconsistent messages about pretreatment. EPA backpedalling and regional "inconsistency" as a result of political pressure has been common.

4. Alternative funding, such as low interest loans, should be considered but it is not the cure-all some have espoused. Most municipalities and sewer districts can borrow all the money that they can afford to pay back at competitive rates. If low interest loans mean 3% or 5% money, well and good. If it is only a couple percentage points below municipal bond rates, it will be of very limited value except to those few localities and small towns with credit problems.

5. Preaward of grants (now limited to emergencies) could expedite many projects. Preawarded projects could be administered <u>exactly</u> as if a grant award had been made so that second guessing which plagued early experiments in this area don't reoccur. Since we are all smarter than we were in the early program years, preaward could be successfully implemented based on the following criteria:

   a. Preaward projects must be within the 5-year funding horizon in the approved state priority lists based on current projected funding levels.

   b. Municipalities or sewer districts must pay <u>all</u> prefinancing costs and extra costs associated with preawarded projects (they will probably still save money!).

   c. Preawarded projects must be administered as a regular grant project with all federal, state, and local procedures and controls.

   d. Municipalities or sewer districts must assume the risk that war, disaster, or other major change may affect funding levels and delay or even cancel project funding.

6. Unrealistic standards based on I/I removal and combined sewer separation should be revised. I/I projects have not proven successful and are definitely not affordable. The effect of I/I flows and combined sewer flows on the ability of municipalities to meet permit conditions should be realistically evaluated (see research recommendation). We need research exploring in-line treatment technology and low cost treatment of I/I and combined sewer flows. Obviously we do not have the answers using the current approach. We should not pretend that we do.

7. A national water quality surcharge amounting to 3-5% of water bills should be considered to help fund water quality programs. This would strengthen the relationships between the "clean water people" and the "dirty water people." Water companies, as well as the general public, will benefit from improved water quality. Cleaner raw water supplies are a good alternative to carbon filters! The public needs to better understand their obligation to downstream users and that one city's pollutant load is another's drinking water. The surcharge would be an effective way to fund water quality programs and raise public awareness.

8. Program research should be improved. There is an appalling lack of research and assistance to local and state governments when standards are set for specific pollutants. Results of long-term river basin studies are either non-existent or well hidden when anything but very basic pollutants are considered. Short- and long-term effects of toxics and hazardous wastes are unknown. Several recent examples point out the deficiencies. ORSANCO (The Ohio River Valley Sanitation Commission) recently sponsored a study of fecal coliform in the Ohio River based on what turned out to be fairly limited data. Some surprising (?) conclusions:

"In comparison with dry weather conditions, wet weather fecal coliform counts in the river were much higher."

"...recommended coliform criteria for the recreation season has probably been achieved less than 50% of the time."

"...it will not be possible for the entire Ohio River to consistently meet...recreational criteria."

In another area, it was recently publicized that the Kentucky River Basin has extremely high aluminum levels (10-100 times average for other rivers). There are no national standards for aluminum and this is apparently just a "local" problem. The effect of very high aluminum levels in the water supply and sewage plant discharges is relatively unstudied, although some medical sources suspect very grim consequences. It was not the intent of the Water Quality Act to "write off" major river basins such as the Ohio and Kentucky rivers. We don't know enough about what we are doing. Better research efforts are very important.

Other options and alternatives are sure to exist. The move to local self-sufficiency is a good idea, but not a realistic idea. Clean Water Act goals require an ongoing federal presence and funding commitment. We should not falter because the task is more difficult than originally anticipated.

AEX2/B

State of Maryland

OFFICE OF ENVIRONMENTAL PROGRAMS
DEPARTMENT OF HEALTH AND MENTAL HYGIENE

201 WEST PRESTON STREET • BALTIMORE, MARYLAND 21201 • AREA CODE 301 • 383- 2737

TTY FOR DEAF: Balto. Area 383-7556
D.C. Metro 565-0451

Adele Wilzack, R.N., M.S., Secretary

William M. Eichbaum, Assistant Secretary

March 23, 1984

RECEIVED FRD APR 2 1984

Mr. George F. Ames, Acting Chief
Policy and Guidance Branch
Office of Water Program Operations
Office of Water
Environmental Protection Agency
401 M Street, S.W.
Washington, D. C. 20460

Dear Mr. Ames:

I am taking this opportunity to comment on the EPA study regarding future federal role in municipal construction grants.

Maryland has established a very comprehensive and complete analysis of the problems regarding noncompliant municipal POTWs and recommended a comprehensive program to deal with achieving compliance through a variety of mechanisms by the early 1990's. As a cornerstone to this effort, it is essential that the federal construction grants program continue at its present rate under present rules.

Maryland has taken the initiative to fill the gap resulting from Clean Water Act amendments and reduced federal assistance by providing additional State resources to achieve the same goals and objectives.

Enclosed are a number of documents that I urge you to read and take into account as you deliberate this most important issue. Of particular note is the State of Maryland's proposed Chesapeake Bay Initiatives and specifically Initiative A-1, Capital Funding Assistance for Pollution Control which shows in detail the Maryland program which rests on a foundation of maintaining the federal program by extensions through Fiscal Year 1991. Also enclosed is a more detailed analysis of Initiative A-1, which may be slightly out of date but presents some very useful background information.

I find this matter extremely important and request that when you have a chance to review these materials that you call me so that I might personally visit with you to discuss in detail Maryland's position on this matter.

Sincerely yours,

Richard B. Sellars, Jr.
Director
Water Management Administration

RBS:szj

cc: Ms. Ellen Fraites
Mr. Kenneth McElroy
Mr. Earl S. Quance

Enclosures

TITLE: Construction Funding Assistance for Publicly Owned Treatment Works Sewerage Systems

PURPOSE: To continue, modify, and expand existing State and Federal programs for construction of publicly owned treatment works sewerage systems, so as to reduce point source nutrient loads and bacteria loads to Chesapeake Bay and its tributaries from these sources.

BACKGROUND:

Federal Program: The Federal Construction Grants Program has existed since 1957. It was dramatically expanded in 1972 and dramatically cut back in 1981. The 1981 amendments lowered authorization levels, reduced the Federal share from 75% to 55%, and severely cut back the types of projects eligible for funding. The present Federal Construction Grant Program is only authorized through 1985 and it is conceivable that it will expire unless vigorous lobbying is done with Congress to reauthorize and continue the program into future years. The 1981 amendments to the programs reduced the projects eligible for Federal aid from around $110 billion nationwide to about $40 billion. Maryland currently receives about $65M/year in Federal construction grant funds. In all estimates of capital need, it was assumed that improvements to the Back River Wastewater Treatment Plant will be approved prior to October 1, 1985 and will, therefore, be eligible for 75% federal funding.

The Growth Issue: Twenty-year growth and size of facilities was always included and fundable under the State and Federal program. However, the 1981 amendments phase out eligibility for Federal assistance forportions of projects for future growth. Under the present Federal program, after October 1984, the State will be prohibited from issuing Federal construction grant funds for growth components of projects. New growth sewerage needs in Maryland have been estimated at $880M to the end of the century. It is recommended that issues of growth and rehabilitation be marked for study over the next year by an Infrastructure Task Force prior to the State expending the necessary dollars to begin addressing the estimated need.

State Capital Funds for Grants and Projects: Maryland has authorized over $300M over 15 years to various water quality loan and sanitary facilities funds which have been a part of the State's overall capital debt process. These have been State general obligation bonds which utilized tax revenue to retire them. Bond receipts were used primarily for grants forpublicly owned sewerage projects. The State's share of a given project was traditionally 12 1/2% of the total construction cost. The State is now proposing that local governments be "held harmless" as to federal reductions thus increasing the State share..

Chesapeake Bay Study Impact on Construction Grants Program: The findings of the Chesapeake Bay Program aggravate or worsen the shortage of construction grant funds. Nutrient enrichment in the Upper Bay since the 1950's has been documented

by the Chesapeake Bay Program. This enrichment has also been assessed as contributing to the decline in submerged aquatic vegetation and to the decline in living resources of the Bay. The Chesapeake Bay Program has recommended that the Upper Chesapeake Bay Phosphorus Limitation Policy be expanded to include smaller plants (currently not required to remove phosphorus). This policy change would increase capital needs for the Annapolis, Broadwater, Freedom District, Cambridge, Easton, and Hurlock plants, in the aggregate amount of $30M. In addition, remaining water quality sewerage needs in Baltimore City are estimated at $500M. The State has also made an $18M construction grant commitment to control nitrogen loads from sewage plans in the Patuxent Basin.

4. PROBLEM: There aren't enough anticipated funds available from Federal and State sources over the next several years to meet the needs. A breakdown of needs is given in the table below. This breakdown of costs is made from the Needs Survey and the Construction Grants Priority List. The following comments amplify the numbers in the table:

(1) The nutrient removal component will not stand alone. It has to be supported by additional facilities in row 2.

(2) Row 3 is largely Back River and Patapsco pipe rehabilitation/replacement of about $140M.

(3) The sludge item in the D.C. area is still unquantifiable.

POTW/CONSTRUCTION GRANT NEEDS

		Other Facilities	Back River	Totals
1.	Nutrient Removal	$M	$M	
	P-Upper Bay-current policy	60	50	110
	P-Upper Bay-proposed policy	30	--	30
	N-Patuxent	18	--	18
2.	Facilities-Water Quality Improvement (Secondary/Advanced Secondary/Advanced Waste Treatment)-statewide	110	175	285
	a. Other-Pumping Stations/Interceptors/ Collectors-statewide	90	--	90
3.	Health/Failing Septic Tank-statewide	50	--	50
4.	Sludge-statewide	50	125	175
5.	Dechlorination	5	--	5
	Subtotals	413	350	763
	Growth (to year 2000)-statewide	469	412	881
	Total	882	762	1,644

he funds available, and assumptions relating thereto, are estimated as follows:

. Federal - $65M/year x 5 years (1984-1989) = $325M

herefore there is a deficit of $523 to the end of the century (excluding growth) hich needs to be made up by (1) increased Federal funds (2) increased State funds, 3) increased local funds, or (4) some combination of the above. The deficit is 1.4B to the end of the centur if growth projects are also considered.

NALYSIS OF ALTERNATIVES: There are several alternative plans for meeting the needs nd alternative sources of revenue to retire State or local bonds.

. PROPOSAL: (Alternative 1)

A. Develop an expanded effort to solicit continuation of the federal construction grants program. This would require a national effort of the National Governors Association and Clean Water Act advocate groups to persuade the Congress to increase annual appropriations for construction grants water-quality related projects, and to complement this effort with public works projects for infrastructure needs.

Federal funds:

B. An expansion of the State water quality loan program for seven years, to pay for any of the existing problem needs (categories 1-5 in table above, i.e. everything except new growth) not covered by Federal funds.

State funds:

C. Study issues of growth and rehabilitation over the next year.

D. No nitrogen controls at point sources are recommended at this time with the exception of the Patuxent Strategy.

. COST:

$65GM of Federal funds over 10 years.
$216.4M of State bond funds over 7 years.
$100,000/year for lobbying for construction grant funds (mostly already in budget)

. LEGISLATION/REGULATION: New Water Quality Loan Act and Water Pollution Control Statute to authorize $11M for nutrient reduction for Chesapeake Bay and other non-federally eligible projects. As previous bond authorizations are depleted, additional capital funds will be required.

8. EVALUATION STANDARDS:

A. By October 1 of each year, a reexamination of Federal construction grant appropriations will be made. If less than $65M for Maryland, bond increases for next General Assembly will be prepared.

B. Ongoing effort to move existing problem projects toward construction so as to reduce inflationary increases.

C. Time will be required to analyze performance and water quality conditions at the completion of phosphorus removal and also to see if phosphorus removal will control nutrient enrichment in the Upper Bay.

D. The Patuxent Strategy can be viewed as a prototypical experiment to see, in fact, in a unique estuarine situation, whether or not nitrogen removal has a beneficial effect.

E. An ongoing evaluation (at least once/year) will be made by OEP to see that local subdivisions are raising revenue for new growth through user charges or tax increases.

9. IMPACTS ON GROUPS AND INDUSTRIES: (See analysis in attachment)

10. COMPLEMENTARY FEDERAL ACTIONS: See Proposal (A). Also need 10-year authorization from Congress of construction grants program and annual appropriations.

11. EXECUTION:

A. Seek Congressional authorization for extension of program - wait until January 1985 to implement, begin building coalition now.

B. Seek annual Federal appropriations - October 1 of each year.

~~C. New $11M bond act - introduce in January 1984.~~

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DEPARTMENT OF HEALTH & MENTAL HYGIENE

OFFICE OF ENVIRONMENTAL PROGRAMS

CHESAPEAKE BAY INITIATIVES

A1 -- CONSTRUCTION FUNDING ASSISTANCE FOR PUBLIC SEWAGE TREATMENT PLANTS

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SUMMARY

SEWERAGE CAPITAL CONSTRUCTION NEEDS

The attached two charts attempt to estimate capital needs for sewerage construction. The projects eligible for both federal and State funding are based on an assumption that the capital needs of the Back River treatment plant will be grant approved by the federal government as of October 01, 1984. The effect of this approval is to qualify the Back River needs for 75% federal funding and would be grandfathered into subsequent years until total construction is complete. Therefore, in determining the State dollars required for match, it was assumed that 60% of the total costs would be eligible for 75% federal funding and the remaining 40% of total costs would be eligible for 55% federal funding.

The projects shown as requiring 100% State funding are of two types. Those eligible for funding with existing bond authorizations and those that are not. Amendments to existing bond authorizations are required to preclude the necessity of seeking new bond authorizations for these projects. The $2M shown for urban nonpoint source projects is a two-year expenditure for demonstration projects. After careful evaluation, if these projects prove beneficial, additional dollars may be sought.

Growth and non-federally eligible rehabilitation projects are not included in these cost figures. OEP is recommending that State funding of such projects be marked for study over the next year.

	FY'85	FY'86	FY'87	FY'88	FY'89	FY'90	FY'91	TOTAL
Federal/State Eligible Costs: [1]	135.0	135.0	127.5	120.0	97.5	81.5	43.5	740.0
Water Quality, Phosphorus Removal, Interceptors, Pumping Stations, Failing Septic Tank Program, Sludge								
100% State Costs:								
Construction Loans	4.0	4.0	4.0	4.0	4.0	4.0	4.0	28.0
Innovative/Alternative [4]	.5	.5	.5	.5	.5	.5	.5	3.5
Chlorine Removal [2]	1.0	.6	2.0	1.4	0	0	0	5.0
Nitrogen Removal [2]	7.6	6.7	6.7	0	0	0	0	16.0
Agricultural Cost Sharing [2]	2.0	6.0	8.0	8.0	8.0	8.0	8.0	48.0
Existing Special Water Quality Needs or Public Health Needs								
Urban Nonpoint Source [3]	1.0	1.0	--	--	--	--	--	2.0
	1.0	1.0	--	--	--	--	--	2.0
Total Project Costs	149.1	154.8	148.7	133.9	110.0	94.0	56.0	846.5
Total State Costs: (State Match & 100% Costs)								
If 22½% State & 22½% Local (50/50 Split)	36.4	42.1	42.2	33.7	28.6	25.9	19.7	228.6
If 32½% State & 12½% Local (Hold Harmless)	41.8	47.5	47.3	38.5	32.5	29.2	21.4	258.2

[1] Due to the probable grandfathering of 75% federal funding for the Back River Treatment Plant needs, the figures shown assume that 60% of federally eligible needs will receive 75% federal funding and the remaining 40% of federally eligible needs will receive 55% federal funding.

[2] These projects are ineligible for funding using existing bond authorizations. Therefore, either the existing authorizations must be amended to allow funding of projects of this type, or new bond authorizations must be sought.

[3] The conditions in [2] above apply here as well. Expenditures are shown for FY'85 & '86 -- once the benefits of these expenditures are evaluated, future funding may be required.

[4] Innovative/Alternative projects are eligible for 85% federal funding. At present, the remaining projects costs are split 7½% State and 7½% Local. Under this proposal, local governments would be eligible for an additional 5% State grant -- funded by the $.5M costs each year. This would result in a 12½% State share and a 2½% local share for Innovative/Alternative Systems.

[5] This category is for water quality needs not eligible for federal funding i.e. failing septic tank program, house connector fees, etc.

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STATE COSTS OF ACTUAL SEWERAGE NEEDS
FY 1985-1986 ($M)

	STATE COSTS FY 1985	STATE COSTS FY 1986	
Federally Eligible Projects:			
Water Quality, Phosphorus Removal, Interceptors, Pumping Stations, Failing Septic Tank Program	22.3	22.3	50/50 split with local govts
	27.7	27.7	Hold harmless
100% State Costs			
Construction Loans	4.0	4.0	
Innovative/Alternative	.5	.5	
Chlorine Removal [1]	1.0	.6	
Nitrogen Removal [1]	4.6	6.7	
Agricultural Cost Sharing [1]	2.0	6.0	
Existing Special Water Quality [1] Needs or Public Health Needs [1]	1.0	1.0	
Urban Nonpoint Source [1]	1.0	1.0	
State Water NPS. (1)	1.0		
Total State Costs:	14.1	19.8	
(50/50 Split with local governments of non-federally funded costs)	36.4	42.1	
(Hold local governments harmless)	41.8	47.5	
Additional Bond Authorization Required [Assumes remaining total of $41.8M from previous bond authorizations will be applied during FY 1985]:			
If remaining authorizations of $41.8M are applied to Total State Costs:			
50/50 Split with local governments	0	36.7 [2]	
Hold local governments harmless	0	47.5	
If remaining authorizations of $41.8M are NOT applied to non-federally eligible costs except construction loans and Innovative/Alternative costs:			
50/50 Split with local governments	9.6	27.1	
Hold local governments harmless	7.6	37.9	

[1] These projects are ineligible for funding using existing bond authorizations. Therefore, either the existing authorizations must be amended to allow funding of projects of this type, or new bond authorizations must be sought.

[2] Assumes a $5.4 carryover of existing bond authorizations from FY'1985.

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REHABILITATION

Rehabilitation of sewer systems is a category of work that is defined as replacement or major rehabilitation of sewer systems beyond the need for correction of infiltration/inflow. Major rehabilitation is considered to be extensive repair beyond the scope of normal maintenance programs where sewers are collapsing or falling apart.

This category of need has been estimated by Maryland over the next 10 years as approximately $180 million. Of this figure, approximately 50% will be eligible for federal funding and are included on the chart displaying Theoretical Construction Needs. However, the existing federal construction grants program as amended in 1981, will make rehabilitation no longer eligible for federal funding for grants approved after October 1, 1984. Thus, approximately $90 million will not be eligible for federal funding.

It is important to remember that when rehabilitation needs in Maryland were estimated in the eary 1970's, the definition included any sewer over 60 years old - up to the year 2000 - requiring total replacement. This approach identified a State need of well over $1 billion. Continued planning and investigation into the problem has now led to a belief that the problem is not as severe as originally thought and that many sewers are capable of maintaining integrity up to 100 years and longer. Thus, more recent estimates of need are much lower.

A great number of applications for grant assistance for this type of work are not anticipated over the next year or two principally as a result of their ineligibility for funding because more important water quality impact projects rank higher on the approved Priority List.

Below are proposed three approaches to deal with the problem in the future and an estimate of State exposure as to capital needs. It is recommended that these three approaches be one of the topics to be studied by an infrastructure committee over the next year.

A. Take No State Action: If a provision for State funding is not provided and federal eligibility expires in October 1984, there will be no exposure as to State funding. Municipalities will find that as problems develop and rehabilitation is needed that they will be forced to raise user fees to generate funds to repair systems or will probably more likely ignore the problem until systems deteriorate to a point where public health or water quality problems may result. This situation is not unlike the entire infrastructure need in cities and towns in terms of repair of roads, bridges, water lines, etc.

B. Provide State Fund Assistance of 32⅓% of Total Project Cost: State fund exposure here would be approximately $6 million per year over the next 10 years, or $60 million.

C. Provide State Fund Assistance of 50% of Total Project Cost: Exposure in this case would be approximately $9 million per year for 10 years or $90 million.

Options B and C can likely be managed to minimize impact in FY 84, 85 and 86 and, therefore, would increase annual needs for the following 7 years to achieve completion of this need over a ten year time period.

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GROWTH PROJECTS

The Federal Construction Grants Program has, in the past, included twenty-year growth and size of facilities as fundable items under the federal grants program. The federal government will cease making such grant funds available for growth related projects as of October 1984. In Maryland, new growth sewerage needs - for 17 years hence - have been estimated at over $800 million.

For years, the State and local governments have shared equally the non-federally funded portion of sewerage projects. Other than ranking projects using federally developed criteria, the State has had little influence in the location and timing of facilities. Although this arrangement has produced many desirable results, there are some non-growth areas with excess sewage capacity and there are also designated new town areas lacking any future sewage capacity. Combined with the federal policy not to fund future growth, State and local decisions regarding the location of future systems will be critical to the environmental and economic health of the State.

It is therefore proposed that the State provide an incentive in the form of State Construction Grants for local jurisdictions that construct new or extend existing sewerage facilities to State recognized areas of future commercial, industrial and residential growth. Below are listed two approaches to deal with the future need. It is recommended that this entire issue be marked for study by an infrastructure committee over the next year.

A. Provide State Grant Assistance of 33⅓ of Total Project Costs: This proposal would provide approximately one-third of project costs. As such, it may be insufficient to influence local decision-making.

B. Provide State Grant Assistance of 50% of Total Project Costs: Under this proposal, the State share would obviously increase over that proposed above. However, local decision-making may be guided to a greater extent thereby ensuring that growth in local jurisdictions is not inconsistent with the State's environmental or economic health.

There is another alternative as well: take no action. This would undoubtedly reduce State capital needs in the future. However, the result may be continued haphazard growth.

The infrastructure committee should attempt to determine actual needs for future growth. As well, assuming option A or B is seriously considered, the committee should develop strict criteria for the priority ranking of projects. The criteria should be based on sound planning, environmental and economic considerations.

STATE OF MARYLAND

PROPOSED CHESAPEAKE BAY INITIATIVES

SUMMARY OF PROGRAMMATIC, OPERATING AND CAPITAL BUDGETS FOR FISCAL YEAR 1985

JANUARY 1984

CHESAPEAKE BAY INITIATIVES

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CATEGORY A

POINT SOURCE POLLUTION CONTROL PROGRAMS

CHESAPEAKE BAY INITIATIVES
CATEGORY A - POINT SOURCE POLLUTION CONTROL PROGRAMS
INITIATIVE A 1 - CAPITAL FUNDING ASSISTANCE FOR POLLUTION CONTROL

I PURPOSE

The intention of this initiative is to strengthen the State's financial commitment to a variety of pollution control activities in response to changes in federal policy and the results of the EPA Bay Study.

The construction costs of federally eligible sewerage construction projects for fiscal years 1985-1991 are shown at the top of Table 1. Federal construction grant assistance will be reduced from 75% to 55% for eligible projects. The State share of such projects, using initially unspent, previously authorized bond funds, will be increased from 12 1/2% to 32 1/2% of eligible project costs to offset for local governments the decrease in federal grant assistance.

In addition to offsetting the federal decrease for local governments, the policies forming this initiative will address several other broad categories of pollution abatement. Efforts to reduce phosphorus loadings in the Upper Bay — a particular problem noted in the Bay study — will also be expanded. Additional funding will be provided for the Agricultural Cost-Sharing Program, created by the 1982 General Assembly, for best management practices on farms. State loans to local governments for sewerage construction projects will be continued, as well as the incentive program for development of innovative or alternative projects designed to solve sewerage needs and improve water quality.

New undertakings include State grants for chlorine removal at public treatment facilities to further protect aquatic resources and experimental nitrogen removal from substantial discharges to the Patuxent River. State grants will be made available to local governments for projects to demonstrate the effectiveness of correcting existing urban nonpoint source pollution problems. A State loan program will be available to industry for the installation of equipment to pretreat their waste streams, resulting in more efficient sewage treatment plant operation and a better quality sewage sludge. A small amount of State grant funds will be made available to local governments to fund the correction of existing special water quality needs or public health needs not eligible under any existing federal program or under one of the new programs described above.

Two new administrative positions are requested in order to assist in the processing of the substantially increased number of grants and loans which will be forthcoming as a result of this initiative.

II BACKGROUND

The Bay Study found that levels of nutrients (primarily nitrogen and phosphorus) are increasing in many areas of the Bay, leading to declining water quality. Nutrient enrichment is most severe in the northern and middle Bay and upper reaches of tributaries, and large algal blooms have been observed. Sections of the Potomac and James River and some smaller areas currently exhibit improving water quality with regard to nutrients.

Discharges from sewage treatment plants, as well as land run-off, are the major source of nutrients contributing to the adverse water quality of the Bay. Federal funds have traditionally been available to public sewage treatment plants in Maryland on a 75% matching basis and at a rate of about $60 million per year. The State has traditionally provided grants to local governments for 12 1/2%. As of October 1984, the federal program will change as follows: (1) federal funds will be available only on a 55% matching basis per project; (2) the only eligible categories will be nutrient removal, secondary treatment, sludge management, and limited interceptor work. The federal sewage construction grant program must be reauthorized in 1985 and, if continued, will remain so restricted. We assume it will provide $60 million per year to Maryland for the five year period after 1985. It must be emphasized that this depends upon Congressional reauthorization. If that is not forthcoming, an even more dramatic change in the redesign of Maryland's program will be required.

The Bay Study recommended that pretreatment programs be strengthened to reduce the discharge of hazardous and toxic materials. Additional recommendations included chlorine control strategies to reduce the adverse impact on aquatic resources, development of incentive programs to encourage farmers to implement best management practices and to implement urban stormwater (nonpoint source) runoff control programs to correct existing problems.

The comprehensiveness of this initiative will allow the EPA Bay Study recommendations to be implemented without a serious drain on local resources. While the State's pretreatment efforts will be increased, loans will be available to qualified industries to help offset the initial expense of complying with requirements.

Funds have not traditionally been available to correct problems from non-point sources. This initiative, through an expansion of agricultural cost-sharing programs and urban storm water management grants, will correct that deficiency.

III BUDGET

A. OPERATING

Number of Positions	2
Salaries and Wages	$24,202
Operating Epenses	9,180
Total	$33,382

The budget includes a 25% turnover rate for FY 1985. Normal turnover and inflationary increases will also increase the budget in subsequent years.

B. CAPITAL

Table 1 illustrates the total cost of projects that are eligible for federal funding for the fiscal years indicated. These projects, combined with those listed under federal ineligible, reflect the seven year need to address water quality and public health in the Bay region and Statewide. Previously authorized State bond funds -- including those originally earmarked for the failing septic tank program -- will be used to fund the State's share of these projects.

The total of authorized bonds is approximately $49.8 million, of which $32.2 million will be utilized in FY '85 and $17.6 million utilized in FY '86.

A new bond authorization of $9 million will be needed to fund most of the projects that are ineligible under existing authorizations. These projects include nitrogen removal on the Patuxent, additional agricultural cost-sharing, urban nonpoint source demonstration projects and loans to industry for installation of pretreatment equipment.

IV NECESSSARY LEGISLATION

A. Chesapeake Bay - State Financial Assistance Programs - Will establish funding policies for loans and grants for a variety of water pollution control projects.

B. Water Quality Projects - State Loans - Will amend prior, unexpended bond authorizations to increase State share on federally-eligible projects and to authorize State assistance for chlorine removal and special water quality needs.

C. Chesapeake Bay Water Quality Loan Act of 1984 - Will authorize $9 million in new authorizations for several federal ineligible classes of projects.

TABLE 1

CAPITAL FUNDING ESTIMATES: FY'85 - FY'91 ($M)

	FY'85	FY'86	FY'87	FY'88	FY'89	FY'90	FY'91	TOTAL
Federal Eligible: [1] Water Quality, Phosphorous Removal, Interceptors Pumping Stations, Failing Septic Tank Program, Sludge	135.0	135.0	127.5	120.0	97.5	81.5	43.5	740.0
Federal Ineligible:								
Construction Loans	2.0	2.0	2.0	2.0	2.0	2.0	2.0	14.0
Innovative/Alternative [4]	.5	.5	.5	.5	.5	.5	.5	3.5
Chlorine Removal [2]	1.0	.6	2.0	1.4	0	0	0	5.0
Existing Special Water Quality Needs or Public Health Needs [2] and [5]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	7.0
Nitrogen Removal [3]	4.0	8.0	6.0	0	0	0	0	18.0
Agricultural Cost Sharing [3]	2.0	6.0	8.0	8.0	8.0	8.0	8.0	48.0
Urban Nonpoint Source [3] and [6]	1.0	1.0	-	-	-	-	-	2.0
Pretreatment Loans [3]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	14.0
TOTAL PROJECT COSTS:	148.5	156.1	149.0	134.9	111.0	95.0	57.0	851.5
TOTAL STATE COSTS: (12½% State Match of Total Federally Eligible Costs & 100% State Costs)	41.2	48.8	47.6	39.5	33.5	30.2	22.4	263.2

[1] Due to the probable grandfathering of 75% federal funding for the Back River Treatment Plant needs, the figures shown assume that 60% of federally eligible needs will receive 75% federal funding and the remaining 40% of federally eligible needs will receive 55% federal funding.

[2] These projects are ineligible for funding using existing bond authorizations. Therefore, prior loan authorizations will be amended to allow funding of these projects.

[3] These projects are ineligible for funding using existing bond authorizations. Therefore, the new $9M bond authorization (Chesapeake Bay Water Quality Loan Act of 1984) will authorize funds for these projects.

[4] Innovative/Alternative projects are eligible for 85% federal funding. At present, the remaining projects costs are split 7½% State and 7½% local. Under this proposal, local governments would be eligible for an additional 5% State grant -- funded by the $.5M costs each year. This would result in a 12½% State share and a 2½% local share for Innovative/Alternative Systems.

[5] This category is for water quality needs also eligible for federal funding; i.e., failing septic tank program, house connector fees, etc.

[6] The conditions in [3] above apply here as well. Expenditures are shown for FY'85 & '86 -- once the benefits of these expenditures are evaluated, future funding may be required.

NICHOLAS J. MELAS
PRESIDENT

Raymond R. Rimkus
General Superintendent
751-5722

THE METROPOLITAN SANITARY DISTRICT OF GREATER CHICAGO
100 EAST ERIE ST. CHICAGO, ILLINOIS 60611 751-5600

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March 29, 1984

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FRO
APR 5 1984

Mr. George F. Ames
Acting Chief
Policy and Guidance Branch
Office of Water Program Operations
Office of Waters
Environmental Protection Agency
401 M Street, SW.,
Washington, D.C. 20460

Re: Comments of The Metropolitan Sanitary District of Greater Chicago on Notice of EPA Study on Strategies for Federal Assistance to Municipal Wastewater Treatment Systems Under Clean Water Act (49 FR 6009; February 16, 1984)

Dear Sir:

The Metropolitan Sanitary District of Greater Chicago is located within the boundaries of Cook County, Illinois, and serves an area of approximately 872 square miles, including 125 member municipalities having a present population of approximately 5,100,000. The District owns and operates seven treatment plants. These facilities have a total capacity of 1869 million gallons per day (MGD), 1955 MGD secondary and 114 MGD tertiary. The District has constructed 516 miles of interceptors and force mains to serve the local sewer systems owned by its member municipalities, utility companies and sanitary districts.

The District is greatly concerned over the United States Environmental Protection Agency's strategy for federal assistance for a variety of reasons. It is our belief that this aggressive study, with a call for papers for input, should have been undertaken long ago. It appears unlikely that the results of this study will be available in time for input into the congressional reauthorization of the Clean Water Act. The District is concerned that grantees can expect an extended dry spell with no federal assistance available during this most critical period when compliance deadlines are approaching.

The various assumptions and descriptions listed in the notice also suggest a strong bias on the part of EPA in favor of continuing assistance to small communities while cutting funding to large municipalities. This hardly suggests the product will be an un-biased study. Any funding program that is based on a community's ability to pay or not pay is inherently unfair. This is punishing the financially prudent communities and rewarding those communities that carelessly have allowed their financial houses to fall in disarray.

The District is also alarmed that the study only looks into funding mechanisms. The most important question, which needs to be addressed, is the question of priorities. Where can the money do the most good? What types of projects will produce the greatest improvement in water quality?

We believe that the greatest needs can be met, and the greatest potential benefits can be achieved, by focussing funding on densely populated areas where the most severe water quality problems exist. The apparent bias in this study would tend to do the opposite.

The $37 billion limit mentioned near the end of Section III (D) is based on an incorrect EPA estimate of "Needs." This estimate was arrived at by eliminating various categories of projects which are still needed to comply with the enforceable requirements of the Act. A major category that has been eliminated from the needs list, but very much in need nevertheless, is Combined Sewer Overflows. Obviously, EPA intends to further reduce the federal commitment toward cleaning up the nations water by closing its eyes to this major contributor of water quality degradation.

The study should not be restricted by current legislation. For example, the study should consider options such as a return to 75% Federal funding and a return to eligibility of CSO projects. All options should be investigated, not just those that further reduce Federal participation.

In summary, the subject document suggests a strong bias at EPA toward re-directing federal funding toward small communities and away from densely populated areas where the most severe pollution exists. This is contrary to the expressed purpose of the Clean Water Act to restore and maintain the integrity of the Nations waters.

The District requests that USEPA reevaluate its policies and priorities in order to accomplish those goals set by Congress under the Clean Water Act.

Very truly yours,

Raymond R. Rimkus
General Superintendent

RRR:ASL:JBM:jf

cc: AMSA
Mr. Ronald Linton
Mr. Lavin
Mr. Dalton

nfpa
National Food Processors Association
1401 New York Ave., N.W.
Washington, D.C. 20005
202/639-5900

Environmental Affairs Division
Jack L. Cooper
Director
202/639-5925
Jane C. Eickhoff
Environmental Specialist
202/639-5926

April 10, 1984

Mr. George F. Ames
Acting Chief
Policy and Guidance Branch (WH-595)
Office of Water Program Operations
Office of Water
U. S. Environmental Protection Agency
Washington, D.C. 20460

RECEIVED FRD APR 11 1984

Regarding: EPA's study of the federal role in municipal wastewater treatment (February 16, 1984, Federal Register)

Dear Mr. Ames:

The National Food Processors Association (NFPA) represents more than 600 member companies that pack processed-prepared fruits, vegetables, meats, soups, baby-food, fish and specialty products, including canned, frozen, dehydrated, pickled and other preserved food items. Also included among the Association's members are companies that provide equipment, supplies and services to the food processing industry.

We are pleased that the agency has initiated this study of the federal role in municipal wastewater treatment. We estimate that approximately 40 percent of our members' plants utilize municipal wastewater treatment facilities. Accordingly, NFPA members have a significant interest in insuring that municipal wastewater treatment facilities provide efficient, economical and adequate treatment.

Industrial users of municipal wastewater treatment facilities are a part of the community and in many cases have been involved in working cooperatively with municipal officials. We are pleased to offer the following comments which are based upon our members' experiences in working with municipal officials and the federal grant program.

Federal Funding

If federal funding for the grant program is discontinued, we recommend that it be phased out in an orderly fashion. If continued, changes are needed to reduce inequities of the current program. Particularly, flexibility should be provided to state and federal officials so that they may allocate available grant funds to solve significant water quality problems. The municipal wastewater

treatment program of the future must be based upon the principal of avoiding treatment for treatment's sake. Scarce federal, state and local resources should only be spent where significant gains in water quality benefits will result.

Further, the grant program must be guided by two main principles. First, it must not be another large scale "give-away" program like the previous 75 percent grant program NFPA has previously brought to the attention of EPA and the Congress our view that the large federal grant program combined with state contributions have led to the planning and construction of wastewater treatment facilities significantly more elaborate and expensive than required to achieve water quality objectives. Any new grant program should provide sufficient flexibility to state and federal officials so that they may allocate scarce resources to solve significant water quality problems and achieve significant water quality benefits. Wherever possible, municipal officials should be allowed to use innovative techniques of upgrading existing facilities instead of planning, developing, and constructing new facilities to replace those currently in place. Further, review of designs and plans must be quicker and simpler than under the previous grant program and must not involve lengthy and bureaucratic procedures.

New vs. Modified or Expanded Facilities

In many cases, we believe water quality objectives can be achieved without the construction of new facilities. Consulting engineers and municipal officials should be encouraged to apply innovative methods of upgrading or expanding existing facilities. By avoiding new construction, and taking maximum advantage of existing treatment capacity, significant cost savings should be achieved.

Operator Certificiation

To assist communities in operating their wastewater treatment facilities in the most efficient manner possible, we recommend that a requirement be established for all such operators to be certified by a state or federal agency. Such certification would be similar to the pesticide applicator certification program currently mandated under the Federal Insecticide, Fungicide and Rodenticide Act and the Retort Operator Certification Program required under the Good Manufacturing Practice regulations of the Food and Drug Administration.

Laboratory Certification

NFPA recommends that a federal or state laboratory certification program be initiated. Such a program is necessary to insure that results obtained at one laboratory will be consistent with results obtained at another.

Municipal Budgeting for Its Wastewater Treatment Facility

As a condition for receiving a federal construction grant, municipalities should be required to demonstrate that they have an adequate budget for operation and maintenance of their wastewater treatment facility for both annual and longterm needs. We recognize that Section 35.2140 of the February 17, 1984, final construction grant regulations requires such budgets to be prepared and submitted along with grant applications. However, once a grant has been issued and the construction of a facility is completed and placed into operation, there is insufficient follow-up to insure that budgets developed to meet projected expenses are adequate to cover actual operating experiences.

NFPA recommends that municipalities participating in the grants program be required to develop cost accounting procedures which clearly show current and projected expenses for their wastewater operations separate from their general budgets. Upon request of state or EPA officials, municipalities should be required to submit such wastewater budgets. We believe that requiring a community to develop and submit its operating budget would provide sufficient incentive to municipal officials to provide an adequate budget. The federal government should provide guidelines to the municipalities for a standard format for preparation of such budget reports and provide guidelines to state and regional officials reviewing them.

Reserve Fund for Replacement and Repair of Short-Lived Equipment

NFPA recommends that municipal budgets for their wastewater treatment facilities include a reserve fund for replacement and repair of short-lived equipment. If proper budgeting and maintenance is achieved, a treatment plant should not "wear out." Consequently, NFPA would not recommend the establishment of a "replacement fund." In the event that the facility must be rebuilt or significantly expanded at some point in the future, then we recommend that funding for such expansion or rebuilding be achieved through traditional borrowing methods.

Future Growth

Each community must control its residential and industrial growth, and projections could be integrated into the budgeting process. Any anticipated needs for new treatment or sewer capacity must be collected up front in the form of connection fees from building developers or prospective industries.

Education of Municipal Officials and the Public

The federal government can assist municipalities become and remain self-sufficient by preparing educational materials on the

need for maintenance and adequate funding for operation of their municipal wastewater treatment facilities. Such information could be in the form of literature or audio/video messages. In order for an adequate budget to be approved by municipal officials, they and the public must understand the value of their system in relation to other public needs such as schools, fire and police.

Community Ability to Pay

We believe that before final construction plans are approved a more thorough assessment of a community's ability to pay all associated costs must be examined. This assessment must include a review of the ability of local industries to meet their financial and other responsibilities, particularly where user charges are projected to rise significantly or where additional pretreatment is under consideration.

Most municipalities have the ability to raise all or a major portion of construction or other improvement costs through some type of public indebtedness. The ability to borrow depends on the local credit rating and the condition of the market for bonds or other loan instruments. Many communities could benefit from general financial management guidance to preserve their credit ratings. Others may in fact need some sort of guaranteed loan from a government agency because no other reasonable financing opportunities exist. EPA should consider the development of guidelines to assist smaller POTWs in pooling of local bonds into a larger state bond to reduce servicing costs. Municipal officials are often reluctant to commit their constituents to long term indebtedness for POTW improvements because they fear a strong expression of dissatisfaction over such an action. In many cases, the commitment cannot be made without voter approval. In either case, POTW officials and voters should be educated about the need for the project. Also, the type of facility to be constructed should be based on the ability of the community to pay all costs; not just capital, but primarily operation and maintenance.

Industry/Municipal Cooperation

Generally, municipal officials do not involve their industrial users in negotiations with EPA or state officials on NPDES permit requirements. As a result, permit limitations are often set without an appreciation of the problems that industrial users will face as the POTW proceeds to comply with the permit's conditions. Many POTW officials also proceed with significant expansion, new construction, or modification without seeking the active involvement and participation by representatives of local major industrial users.

In many cases, the local industrial community doesn't realize the potential economic consequences of these activities, until

informed that their rates will rise significantly or that the POTW can no longer accept a particular plant's effluent without significant reductions in volume and/or strength. NFPA recommends that EPA develop guidelines for municipal officials to follow to help assure that adequate participation in NPDES permit negotiations and POTW planning by significant industrial users is achieved. Many food processing companies have knowledgeable experienced individuals on their staff who, if contacted, can make a significant contribution in permit negotiations and compliance planning.

Closing

We appreciate this opportunity to submit these comments on behalf of our members and would be pleased to meet with you and other agency officials to discuss them in greater detail.

Sincerely,

Jack L. Cooper

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National Food Processors Association
1401 New York Ave., N.W.
Washington, D.C. 20005
202/639-5900

Environmental Affairs Division
Jack L. Cooper
Director
202/639-5925
Jane C. Eickhoff
Environmental Specialist
202/639-5926

June 1, 1984

Mr. George F. Ames
Acting Chief
Policy and Guidance Branch (WH-595)
Office of Water Program Operations
U.S. Environmental Protection Agency
Washington, DC 20460

Subject: Follow-up Comments to May 31, 1984 Public Meeting on Financing Municipal Wastewater Treatment

Dear Mr. Ames:

Three representatives of the National Food Processors Association (NFPA) attended EPA's May 31 public meeting on the appropriate federal and non-federal roles in financing municipal wastewater treatment. We were pleased with the attention the agency has given to the various aspects of financing treatment systems, including its recognition of the need for proper operation and maintenance to prevent long-term deterioration of treatment facilities. We are concerned, however, that the tone of the meeting indicated that the agency considers reconstruction of entire facilities as normal or expected.

We believe that facilities with well thought through budgeting procedures and proper operation and maintenance programs will not "wear out" and should not require near total or total reconstruction. The agency's study and regulations should encompass appropriate measures to foster long-term management to ensure that both budget and maintenance programs are adequate to prevent significant deterioration of facilities and keep them in good working order.

When community growth results in increased loadings that cannot be adequately and properly treated, modifications, improvements, and additions should be made to existing facilities to improve performance. Existing facilities should not be scrapped just so a new facility can be built.

We appreciate the opportunity to comment again on EPA's study of financing alternatives for municipal treatment systems.

Sincerely,

Jack L. Cooper

cc: POTW Subcommittee

WASHINGTON, D.C. • BERKELEY, CALIF. • SEATTLE, WASH

NATIONAL SOCIETY OF
PROFESSIONAL ENGINEERS
2029 K Street, NW
Washington, D.C. 20006
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April 3, 1984

Mr. George F. Ames
Acting Chief, Policy and Guidance Branch (WH-595)
Office of Water Program Operations
Office of Water
U. S. Environmental Protection Agency
401 M Street, S.W.
Washington, D. C. 20460

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APR 3 1984

Dear Mr. Ames:

On behalf of the National Society of Professional Engineers, I am pleased to submit the enclosed proposal for an alternative to the wastewater treatment construction grants program for consideration by the Environmental Protection Agency. This proposal has been adopted by the Construction Grants Committee of the Professional Engineers in Private Practice (a division of NSPE) and the NSPE Legislative and Government Affairs Committee.

We welcome the opportunity to work with your staff toward development of alternatives to the current construction grants program.

Sincerely,

Kermit L. Prime, Jr., P.E.
Chairman
Legislative & Government
Affairs Committee

KLP:BF:jw
Enclosure

A PROPOSED ALTERNATIVE

TO THE

WASTEWATER TREATMENT

CONSTRUCTION GRANTS PROGRAM

UNDER THE

CLEAN WATER ACT

SUBMITTED BY THE

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

APRIL 2, 1984

For the last decade, from 1973 through 1984, Congress has appropriated $41.3 billion to the Construction Grants Program. Most of those monies have now been obligated. However, much remains to be done. As of December 31, 1982 there were, according to the U.S. Environmental Protection Agency (EPA), 15,431 Publicly Owned Treatment Works (POTWs). By the year 2000, approximately 5,832 of that number will be in need of enlargement or upgrading. According to the same survey, by the year 2000 there will be a need for an additional 6,627 plants. If total identified needs are considered, the requirement approaches $100 billion.

The Clean Water Act has previously been modified twice delaying compliance deadlines. The EPA Administrator published a "National Municipal Strategy" on January 23, 1984 requiring that by July 1, 1988 all Publicly Owned Treatment Works (POTW's) either be in compliance with water quality standards or be on a legally enforceable compliance program to achieve compliance.

In 1977, Congress amended Section 301 of the Act to allow POTW's to delay meeting requirements of the Act, "based on the earliest date by which financial assistance will be available from the Federal Government". However, in recognition of the tremendous financial impact and the delays inherent in such a position, the 1981 Amendments to the Act made substantial changes in National policy and Federal funding levels for municipal wastewater treatment. Accordingly, the 1981 Amendments incorporated three major changes pertinent to this paper:

--Annual authorizations were substantially reduced (to $2.4 Billion/Year);

--The Federal share was reduced from 75% to 55% effective at the end of FY 84; and

--"Reserve Capacity" funding was eliminated -- providing that no grant made after October 1, 1984 shall be made to construct that portion of any treatment works providing reserve capacity in excess of existing needs on the date of approval of a Construction Grant.

These changes were designed to stretch or "leverage" the Federal funding further; i.e. -- to construct more facilities, while simultaneously reducing the fiscal impact on the Federal Treasury. While the monies spent through the Construction Grants Program since 1973 have played a major role in bringing about progress related to cleaning up our nation's waters, we believe the time has come to give serious consideration to alternative financial arrangements (other than total dependence on grants) for the construction of POTW's. We strongly believe that the options discussed below will result in a more efficient and effective use of Federal and local community dollars. More facilities will be constructed more quickly with a smaller drain on the Federal Treasury. Consequently the nation could improve its waters at a faster rate than it would with continued reliance on the Federal grants program, even with the changes noted above.

We take this position for two reasons. First, and most importantly, the very existence of a grant program actually discourages many communities from proceeding with POTW construction. It is politically unattractive for community leaders to proceed without a grant (even though they have little or

no reason to believe that such a grant would be forthcoming) when their constituents see other communities receiving such grants. The procedural requirements associated with the Construction Grants Program have seriously delayed POTW construction. Experience gained through the last decade indicates that it takes eight to ten years to complete the average project within the Construction Grants Program. These delays have inflationary effects on the facilities being constructed while simultaneously deferring much needed pollution abatement projects.

OBJECTIVES

When analyzing the various alternative financial assistance mechanisms, the following objectives were considered:

-- The alternative financial assistance program should minimize inherent delays.

-- The program should provide sufficient financial assistance in time for each of the communities faced with the revised compliance date to receive funding. That is:

  -- Provide 40 to 93 billion dollars in overall project costs.

  -- Provide financial assistance by July 1, 1988.

-- Leave as much control as possible at the lowest level of government: i.e. local and state.

-- Recognize financial differences in the various size communities: large, medium and small.

-- Provide for a continuation of grant assistance for those communities which have received phase segmented funding under the Construction Grants program.

-- Focus the majority of the funding assistance on communities with "enforceable requirements" while maintaining flexibility for assistance for related pollution abatement efforts.

-- Provide the greatest level of assistance for those with the greatest financial need.

CURRENT SITUATION -- GRANTS

To understand the relative merit of the alternatives to grant funding discussed in this paper, a thorough understanding of certain characteristics of the existing grant program must be illustrated. Of particular interest are issues related to (a) eligible costs versus total project costs, (b) real costs of obtaining and financing the local share, and (c) factors affecting interest.

Though no comprehensive study data is available at this time, experience with the Construction Grants Program under the 75 percent Federal share scenario indicates that the effective grant percentage for treatment plant projects could reasonably be expected to fall in the 60 to 70 percent range of the total project costs. This percentage falls to the 55 to 65 percent range for projects which were predominantly pipeline related. This lowering of the

Federal share is caused by determinations of ineligibility for certain elements of the project costs. This situation will be exacerbated by the aforementioned revisions which have been made in the Clean Water Act. Such factors include ineligibility for Federal funding for reserve capacity, treatment levels beyond secondary that don't meet the criteria of an advanced treatment review, no funding for collection systems, and many others. Some insight into this situation can be gained from a review of the Needs Survey results. EPA has determined that approximately $35 billion is needed to meet the "enforceable requirements" of the Act, while the Needs Survey documents an overall requirement of over $90 billion. This overall requirement could be reduced to $57 billion by eliminating the Combined Sewer Overflow costs; however, this is still approximately 160 percent of the costs related to the "enforceable requirements". Accordingly it appears reasonable to assume that, in the 55 percent grant scenario, the actual level of Federal participation of overall project costs may range from 30 to 45 percent.

The actual cost of obtaining the "local share" is also quite significant. Assuming a community has $10 million in eligible project costs, they may expect to receive $5.5 million in Federal aid. Few municipalities have the financial resources to produce the local share without borrowing the money. This problem is exacerbated by the fact that the current program provides only for reimbursement grants. This means that a community must incur and frequently pay for all project costs prior to submitting requests to EPA for reimbursement. At best, they can expect to receive reimbursement forty-five to sixty days from the date of request. However, the actual delays are often double that period. Accordingly, the vast majority of the municipalities turn to some form of municipal bond financing to obtain the local share. Usually the amount of money financed in the bond issue is significantly greater than the $4 million figure which may seem appropriate for the example cited above. The costs of developing and marketing the bond issue usually adds another 5 to 7 percent to the local share. In addition, to obtain better bond ratings (and therefore lower interest rates), they may choose to capitalize other funding requirements such as: renewal and replacement funds, sinking funds, reserve accounts, or insurance costs. Further, to obtain reasonable interest rates on the new bond issues, these communities may find it prudent to refinance any outstanding bond issues which pledge a portion of the revenue stream contemplated for repayment of the new debt. These actions may cause an increase in previously existing bond interest rates of 2 to 7 percent. When the above factors are taken into consideration, these "costs" could easily increase the local share by 10-20 percent; without considering the interest cost.

A discussion of the factors that affect interest rates is pertinent at this point. The interest rate charged for a particular bond issue can generally be described as the sum of three factors: (a) the investor's perception of the effect of inflation for the duration of the investment contemplated, (b) the investor's perception of the risk associated with the community's ability to repay the debt, plus the perceived risk related to the inflation projection identified in (a) and, (c) a potential return on the investor's investment. To illustrate the above discussions, refer back to the $10 million dollar example:

	Costs ($ million)
-- Eligible portion of Project	$10.0*
Federal Share	(5.5)
Local Share	$ 4.5
-- Financing Costs (@20%)**	0.9
-- Bond Issue	$ 5.4

Assuming level debt service (principal and interest) for a period of 30 years at 10 to 12% interest, the annual payments would be approximately $550,000 to $650,000. Accordingly, over the 30 year period, the community would pay something between $16,500,000 to $19,500,000 in principal and interest. Deducting the amount of the bond issue indicates that between $11 to $15 million is paid in interest alone. It is interesting to note that this amount is between two and three times the amount of the bond issue and greater than the total eligible portion of the project (including the grant amount).

ALTERNATIVES CONSIDERED

Previous analyses have indicated that low interest loans, covering 100 percent of project costs, can be implemented such that the impact on the rate payers in a community would be equal to or lower than those with grants. In addition, we strongly feel that the loan program obviates the two major problems associated with the grant program discussed previously. A loan program, wherein the community would be responsible for repaying the entire principal amount plus some portion of the interest, should be implemented with minimal regulatory intervention and oversight related to the technial aspects of the program, as well as providing financial incentive for more prudent technical and financial decision making on the part of the local community.

Three primary types of loans were considered:

- -- A federally-funded "loan bank" concept, wherein the Federal government provides the seed money for low interest loans.
- -- A system whereby the Federal government would "subsidize" the interest portion of a loan obtained in the private sector.
- -- A system whereby the Federal government "guaranteed" loans made to municipalities by the private sector; thereby reducing risks and obtaining improved interest rates.

The revolving "loan bank" concept would have the effect of recirculating the money, making it available for potential future borrowers. However, because payment periods usually range from 20 to 40 years, the "recycled money" would be available in small quantities and would be further diluted by the effects of inflation. Accordingly, after the initial seed money was distributed, the program would be of little significant effect. In addition, as all of the project costs would be borrowed from the bank, a Federal commitment of $2 to

* As noted above, total project cost would probably be far greater than this amount.

** Assumes capitalized reserve account

$4 billion annually would only result in construction of $2 to $4 billion of project costs without some state funded cost sharing. Accordingly, this alternative would not meet one of the objectives as outlined above; it would not provide a viable financing program for the construction of between $40 and $93 billion within the next five to eight years.

With the "loan subsidy" concept all of the above objectives would be met; however, Congress would be committed to annual cash outlays for the next 20 to 40 years. Assuming the total amount of loans subsidized was $60 billion and the average interest rate paid by the POTW's was in the range of 10 - 12 percent, with a loan percentage objective of 5 percent, the Federal subsidy would be 7 percent. This means that the Federal government's financial obligation would be between $3.0 and $4.2 billion in the first year, steadily decreasing to zero in a 20 to 40 year period. We feel that this alternative would obligate the Federal government to a present worth commitment greater than would be politically achievable.

The "loan guarantee" concept holds much promise, particularly when reinforced with a small interest subsidy. Assuming the program could be implemented such that the guarantee provision would not be abused, the Federal government's liability would then be confined to stepping in and assisting communities when unforeseen circumstances affected their ability to pay. By reducing the risk to the bond holders (both with respect to ability to repay and effects of inflation), the private sector could provide the financial resources at lower than market interest rates. It is believed that having the Federal loan guarantee, in conjunction with municipal tax-free bonds, average interest rates could be brought down to 6 to 9 percent or lower. Further enhancements to the system could then be implemented to bring the interest rates down to a 5 percent level with reasonable financial obligations on the part of the Federal government. These enhancements would include adjustable-rate financing and a small interest subsidy. This concept meets the objectives set forth above.

RECOMMENDED ALTERNATIVE

We recommend consideration of an alternative which consists of: (a) loan guarantees, (b) adjustable rate bonds, and (c) interest subsidy (when the annualized interest rate exceeds 5 percent).

A loan assistance program would be offered to a unit of local government upon affirmative determination that they met the following criteria:

-- State certification that at least 60 percent of the total project costs to be funded under the program relate to meeting the current "enforceable requirements" pursuant to the Act.

-- State certification that the project, when completed, would be in compliance with State and Federal water quality standards.

-- Determination by the appropriate Federal agency that the unit of local government had submitted a suitable Financial Plan demonstrating that it had identified a revenue source of sufficient magnitude to repay its obligations under the bond issue.

Upon meeting the above criteria, the Federal government would issue a certificate committing to guarantee the debt repayment. If a default were to occur, the Federal government would provide all or a part of a payment to the extent necessary to meet the bond payment obligations. If the Federal government had to step in under this scenario, it would have the right to recover from the unit of local government in subsequent years.

Basically the bonds would be issued to the private sector as short-term variable rate obligations. Debt retirement would include interest plus an annual principal payment of at least 2 percent of the original amount of the bond issue. In no case would the Federal guarantee extend beyond 30 years from the date of the original bond sale for that particular project.

If in any term, the annual interest rate for the bonds was above 5 percent, the Federal government would make payment to the unit of local government in the amount of the difference between the actual interest rate charged by the bond market and the 5 percent interest goal.

As part of the Financial Plan approval, the municipality would be required to develop a system of rates to generate revenues sufficient to repay its obligations under the loan, plus cover the costs of operation, maintenance and equipment replacement costs.

The current Construction Grants Program would be continued until all projects involving phase segmented funding during or before fiscal year 1985 are completed. Beginning in fiscal year 1986, Congress would provide that no new projects receiving Construction Grants Program funding would be initiated except as set forth below.

Large systems, involving projects wherein over $50 million is needed specifically to meet "enforceable requirements" under the Act, would be considered for some grant participation annually by Congress on a line-item budget basis. Communities of less than 10,000 people as of 1984, would be eligible for combination grant and loan assistance under the existing FmHA program. Any community which elects to receive funds through either of these sources after 1986 would <u>not</u> be eligible for funding under the loan program described above.

No new projects would be eligible to initiate construction under the loan program described above after the end of fiscal year 1990.

Approved by:

Construction Grants Committee, Professional Engineers in Private Practice, March 29, 1984

Legislative and Government Affairs Committee, National Society of Professional Engineers, April 2, 1984

New England Interstate Water Pollution Control Commission

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April 3, 1984

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APR 6 1984

George F. Ames, Acting Chief
Policy and Guidance Branch (WH-595)
Office of Water Program Operations
Environmental Protection Agency
Washington, DC 20460

SUBJECT: EPA Study of Federal Role in Municipal Wastewater Treatment

Dear Mr. Ames:

In response to the EPA notice concerning the study referenced above (49 FR 6009; 2/16/84), I am herewith submitting a report titled "The Impacts of the 1981 Clean Water Act Amendments on the Construction Grants Program" (March 1984). This report is being submitted by the Commission on behalf of its Compact-member States (New England and New York).

We trust you will find this information useful in your study of the construction grants program. If you have any questions concerning this material, please let me know.

Sincerely,

for Ronald F. Poltak
Executive Director

RFP:jpc

Encl.

THE IMPACTS OF THE 1981 CLEAN WATER ACT AMENDMENTS ON THE CONSTRUCTION GRANTS PROGRAM

MARCH 1984

Prepared by the

New England Interstate
Water Pollution Control Commission

Boston, Massachusetts

Background

Public Law 97-117 amended the federal Clean Water Act in December 1981 by substantially reducing federal financial assistance to municipal water pollution control projects beginning in Fiscal Year 1985. While these amendments covered many aspects of the construction program, the areas of particular concern to the members of the New England Interstate Water Pollution Control Commission (NEIWPCC) are:

1. The authorized national appropriation for construction grant funding was reduced from $5 billion to $2.4 billion per year.

2. Beginning in FY-85, the federal grant percentage will drop from 75% to 55% of the eligible project costs. Provisions were made to grandfather certain types of projects.

3. Beginning in FY-83, $200 million was authorized for correction of combined sewer overflows (CSO's) along marine bays and estuaries. Non-marine CSO projects may be funded out of regular allotments upon request of the Governor and demonstration of water quality benefits.

4. Beginning in FY-85, only secondary and advanced wastewater treatment plants, interceptors, and infiltration/inflow will be eligible for federal funding. The Governor of each State may set aside 20% of the annual allotment to his State to fund projects in categories other than those just listed.

These changes in the program will have significant impacts on project planning and implementation at the State and local level. The following report documents and describes those impacts on the water pollution control programs of the six New England States and New York State. It also offers recommendations for Congressional action which is necessary to avoid the disruptions and inequities that will occur if the provisions of the Act are left unchanged.

ISSUES OF CONCERN

Many of the program changes brought about by the 1981 amendments have the ultimate effect of increasing the non-federal share of project costs and, in many cases, significantly increasing the individual household user costs. For example, the reduction in federal share from 75% to 55% and the restriction on types of projects eligible for federal grants will clearly increase local costs. Further, the reduction in the national authorization for the construction grants program from $5 billion to $2.4 billion, coupled with EPA's recently issued municipal enforcement policy, means that many communities will be expected to move ahead on projects without federal funds. Although larger urban areas may have the financial capability to proceed with projects on such a basis, many smaller communities would face exorbitant user costs even if they receive a 55% federal grant.

The 1981 amendments also put further limitations on the funding of combined sewer overflow correction projects. Although the amendments authorized $200 million per year for marine CSO projects, only $30 million was appropriated in each of FYs '83 and '84, and the first grant is yet to be made from these special funds.

The following paragraphs provide a detailed explanation of the NEIWPCC's concerns on the issues of user cost impacts, the inequity of reducing the federal share, the limitations on CSO funding, and the declining construction grant authorizations.

Impacts on User Costs

Table 1 illustrates the impact of a reduced federal share for a number of communities across New England and New York State. The data are taken from actual projects and are intended to be indicative of projects in each State. Thus Table 1 presents only a partial list of projects where the decreased federal share will be picked up at the local level and user costs will increase substantially as a result. It is important to realize that in several States the construction grants program is now shifting its focus from the larger, urban projects with greater financial resources to the smaller communities. Thus the reduction in federal share, and the resultant increase in local share, comes at a time when it will have the greatest impact on increasing local user costs.

The decrease in federal share would in many cases require an increase in State grant share in order to make the project financially feasible in terms of local costs. However, there is no reason to expect that the State legislatures will be any more willing to increase their commitment than Congress has been. Even if they were, the resulting increases in State appropriations needed are often unacceptable. For example, the State of Vermont has calculated that if they were to increase their share, as required by existing State statute, to 35% in order to match a 55% federal share, the result would be a 200 to 300 percent increase in the annual State appropriation level from about $3 million to as much as $9 million to match a federal allotment of $12 million. The required 10 year total appropriation would more than double from $32.35 to $66.0 million. In addition, Vermont's "ceiling grant" program, which currently provides additional funds (not to exceed 35% of eligible costs) to projects with user costs over $150/year, would be effectively eliminated if the basic State grant is increased from 15 to 35% in response to the reduced federal grant.

The State of Maine also operates a program with a sliding State grant percentage to keep user costs at a reasonable level. In Maine, the reasonable level is considered to be 1 1/2% of the effective buying income (EBI) of a household. A recent review of 13 small community projects scheduled for FY's 1985 and 1986 revealed that, with the federal share dropping to 55%, the number of projects which would have user charges greater than 1 1/2% of the EBI of local residents will double from 5 to 11. Thus to maintain user costs at a reasonable level will require a significant increase in State grants at a time when the State is nearing 100% commitment of its existing bond issue for such projects.

Another means of measuring the impact of increased user costs is to compare them to family income. For the two New Hampshire projects listed in Table 1, the total annual costs per household are $275 and $252 at 75% federal share, which represents 2.5% and 1.9% respectively, of family income in each town. At 55% federal funding, annual cost per household jumps to 8.7% and 4.0% respectively, of family income.

In summary, one inescapable impact of a reduced federal grant share will be an increase in local user costs. The magnitude of the increase will vary depending on the size of the community and the type of project that will be undertaken. The greatest increases will occur in small communities that are required to construct both secondary treatment facilities and interceptors.

Inequity of a Reduced Federal Share

As noted earlier, the projects expected over the next few years to reach the "fundable" portion of priority lists in several States are the ones located in smaller, rural communities. For the most part, these communities have not yet received any federal grants for construction of water pollution control facilities and, regardless of their readiness to proceed, have been required to wait until higher priority projects received funding. Now they face a substantial federal grant reduction imposed upon them because the federal government is unwilling to honor its commitment to assist municipalities in meeting the goals of the Clean Water Act. Their perception of the unfairness of this approach will no doubt affect their willingness to proceed with projects designed to meet federal requirements.

The basis for the States' concern on this issue can be illustrated by looking at the number and dollar value of projects for these first-time grantees. In Maine, there are 47 such projects on the priority list for FY 85 and 86 funding alone, with a total eligible cost of $120,000,000. Connecticut has 8 "first grant" projects scheduled during FY 85-88 whose total eligible cost is $94,900,000, while New Hampshire has identified 73 remaining projects (primarily for treatment and interceptors) waiting to receive their first grant, with a total eligible cost of $233,132,000. Thus, a partial listing from only three States reveals there are 128 projects with an eligible cost greater than $448 million waiting to receive their first federal grant under the Clean Water Act. If the federal share drops to 55%, the State and local shares will increase by a total of $90 million for these projects.

Limitations on CSO Projects

The 1981 amendments addressed CSO project funding in two ways: 1) by authorizing $200 million per year for marine CSO projects and 2) by authorizing the use of regular construction grant funds for CSO projects at the request of the Governor of an affected State. The use of funds in either case requires a demonstration of water quality benefits from a particular project or project segment in accordance with EPA marine CSO fund guidance issued in January 1984 and the EPA construction grants

TABLE 1

IMPACT OF FEDERAL SHARE REDUCTION ON LOCAL COSTS

STATE	Total Cost of Project ($,000's)	75% Federal Share: Local Share	75% Federal Share: User Cost, $/household/yr	55% Federal Share: Local Share	55% Federal Share: User Cost, $/household/yr	Per Cent Increase In User Cost	Type of Project
VERMONT	17,526	$96,000	150	$2,580,000	448	200	Secondary Treatment & Sewers
	1,482	72,256	150	152,000	235	57	" " "
	4,475	92,358	150	638,000	308	100	" " "
	5,384	538,400	94	540,000	140	50	Upgrade to Secondary
MAINE	8,164	2,499,400	220	3,758,200	566	157	Treatment, Interceptors & Sewers
	4,160	1,299,800	386	1,935,400	596	54	" " "
	6,679	946,000	263	2,220,000	510	94	" " "
NEW HAMPSHIRE	1,772	88,600	275	443,000	875	218	Treatment & Interceptors
	4,080	204,000	252	1,020,000	540	114	" "
CONNECTICUT	4,970	1,756,300	547	2,769,950	854	56	Treatment, Interceptors & Sewers
NEW YORK*	2,100	476,900	369	792,700	556	51	Secondary Treatment & Sewers
	2,888	1,133,600	547	1,335,800	612	12	" " "

Note: "User Cost" includes annual debt retirement and O&M charges.

*Assumes State share increases to 30%.

Many of the older cities in the Northeast have extensive CSO systems which significantly impact water quality. As a result, water bodies such as the Connecticut River, Boston Harbor, and Narragansett Bay will continue to experience water quality problems even after all the treatment plants are built. Nationwide, the CSO needs, according to the 1982 Needs Survey, are $35.7 billion. The needs in New England and New York represent about 28% of this national total CSO needs. Of the $11.6 billion in potential marine CSO needs identified in the 1982 survey, the NEIWPCC member States are responsible for $7.7 billion, or 66%. Thus we feel that the CSO correction program is an important element in achieving our water quality goals. At the same time, we do not feel that the process for justifying CSO projects for funding should be any more rigorous than that required for other categories of eligible projects. EPA and the Congress should recognize the ability of the States to prioritize projects for federal funding based upon achieving the goals of the Act.

Declining Construction Grant Authorizations

A longstanding concern of the States has been the trend toward declining authorizations for the construction grants program under the Clean Water Act. Equally disturbing are the declining appropriations since the early years of the Act. This trend persists despite the evidence provided in the Needs Survey that shows even the most basic needs to be well in excess of funds currently authorized under the Act. Several States have calculated that with the present annual appropriation levels, it will take 20 years or more for them to fund projects necessary to meet the fishable-swimmable goals of the Act. In New York, it will take 12 years just to finish funding the phased/segmented projects that have already been started. Meanwhile, inflationary pressures will continue to increase the cost of projects waiting to be funded. The net result is that the shortage of federal funds begins to overshadow the reduction in federal share and ultimately fewer projects end up receiving any federal assistance and/or being constructed.

As an example of the discrepancy between "Needs" and appropriations, consider that Region I's (New England's) 1982 Needs for Categories I, II, IIIA and IVB (secondary and advanced treatment, infiltration/inflow correction, and interceptor sewers) were $4.42 billion. At the current appropriation level which provides $184.3 million/year for New England, it will take about 18 years to meet these basic Needs at 75% federal funding (13 years at 55% federal funding, assuming the non-federal share is available).

Conclusions

1. The reduction in federal share will increase local user costs, especially in small, rural communities.

2. The States will find it extremely difficult, if not impossible, to expand their grant programs to offset the federal share reduction.

3. The resulting increase in local share will in the case of many small community projects result in prohibitively high user costs.

4. Local officials, perceiving the federal government withdrawal from its commitment to fund Clean Water Act projects, will become increasingly reluctant to proceed with projects.

5. To achieve the objectives of EPA's recent National Municipal Policy, the States need the flexibility to award 75% grants to certain types of projects.

6. The goals of the Clean Water Act will not be achieved within the established time frame at current levels of federal funding.

Recommendations

1. Amend the Clean Water Act to allow EPA at the States' request to award 75% federal grants for projects which would otherwise be unable to proceed because of excessive user costs.

2. Increase the authorizations for the construction grants program to a level more consistent with meeting outstanding needs in a reasonable time frame.

3. Eliminate the mandatory set-aside for innovative/alternative projects and its related impact on a State's eligibility to receive reallocated funds.

4. Continue with the marine combined sewer overflow (CSO) correction program funded at a level more consistent with meeting the needs in a reasonable time frame.

New Hampshire Natural Resources Forum

Sky Farm, Box 341
Charlestown, NH 03603

April 14, 1984

APR 19 1984

RECEIVED
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Mr. George F. Ames
Acting Chief, Policy &
Guidance Branch (WH-595)
Office of Water Program Operations
Environmental Protection Agency
401 M Street S.W.
Washington D.C. 20460

Dear Mr. Ames,

I am glad to read in the February 16, 1984 Federal Register of your review of the federal financial role in wastewater treatment.

The enclosed report, which I completed last fall, highlights the difficulties faced by a relatively poor state like New Hampshire in face of federal funding cutbacks. I hope you will read this report, because I think it will give you a perspective that you may not hear through bureaucratic channels. I particularly call your attention to pp. 18 and on.

Your study should watch very carefully, I believe, the question of equity, for example, whether relatively affluent states like Florida, New Jersey, and Massachusetts are going to be able to have cleaner water than relatively poor states like New Hampshire.

Additionally, I am sorry to see that you treat the 55% funding level as a sacred cow that cannot be touched. You may need the flexibility of reexamining that option, and giving Congress an informed chance to consider it on the basis of the information your study will produce.

As a companion to this study, wouldn't it be a good idea to accompany these findings with the results of a different investigation that would assess the benefits of clean water, so that Congress could see the positive results of its clean water investment, and could compare the results, for example, of investing in clean water over a 5 or 10 or 20 year period? Such an analysis could significantly improve public support for your findings, and I hope the Office of Water Program Operations will consider sponsoring such a study.

Finally, would you be so kind as to put my name on the list for all public participation opportunities associated with your study of the federal role in wastewater treatment?

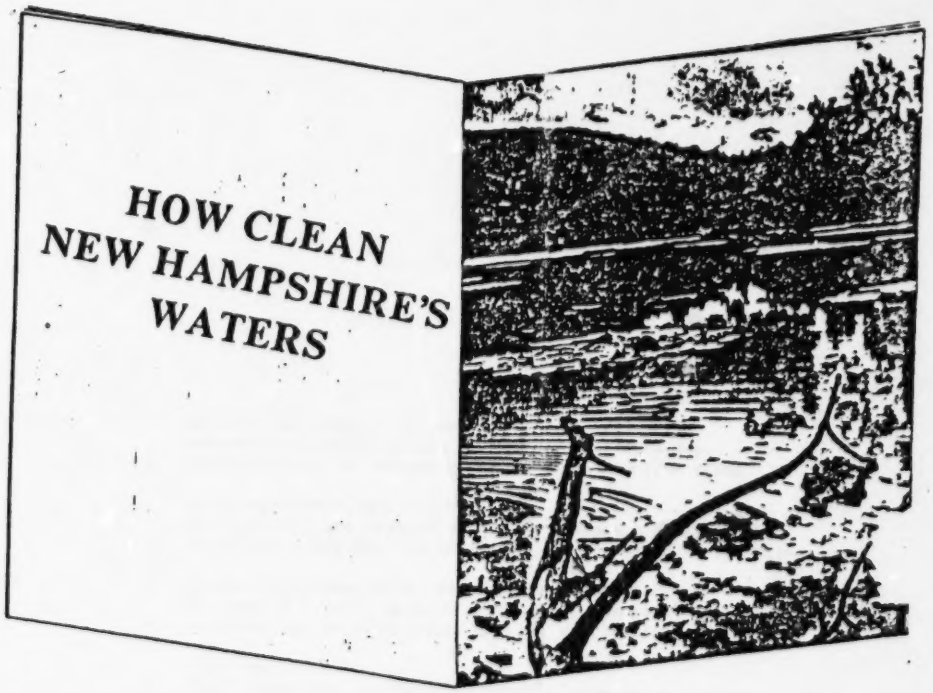
Thank you,

Sharon F. Francis

Sharon F. Francis

Carolyn Baldwin, Chairman
David Morton, Vice Chairman
Leslie J. Corey, Jr., Treasurer
Sharon F. Francis, Secretary & Coordinator

The Forum meets to share information & strategies; explore & form coalitions for specific projects; foster [illegible] the environmental community...



An Important Message About
WATER POLLUTION CONTROL in NEW HAMPSHIRE

provided by the
NEW HAMPSHIRE
NATURAL RESOURCES FORUM

To concerned citizens and public officials of the State and Nation.

This paper is provided as a stimulus to public discussion.

For additional copies or further information, contact:

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HOW CLEAN NEW HAMPSHIRE'S WATER?

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HOW CLEAN NEW HAMPSHIRE'S WATER?

For the last fifteen years, New Hampshire people, and tourists who flock to the state, have been able to depend on progress in cleaning up pollution from the state's flowing rivers and sparkling lakes. Over the last decade, more than $585 million has been invested by the federal government, the state, local communities and private industry in this vast pollution control commitment.

This investment, however, is now being jeopardized by different budget priorities emanating from Washington. The national argument between James Watt, Anne Gorsuch Burford and their environmentally-minded challengers has captured public attention. Even with the departure of the two controversial figureheads, their policies in many respects continue to prevail. Paramount among these policies is a drop in federal leadership for halting pollution, and a drop in federal funding that was making it possible to get the cleanup done.

For New Hampshire's lakes, rivers, seacoast, and underground water supplies, the effects are alarming. The State's Water Supply & Pollution Control agency cannot do its job, not because it does not know how, but because it is not being given the resources. Deadlines established by Congress are being missed. Nobody knows exactly how bad the problem is, because there are not enough scientists and technicians to go out on the rivers and lakes to monitor pollution and compliance.

The loss is not only environmental; it is economic. The economic benefits of new opportunities for recreation and tourism, and the benefits of increased shorefront values do not accrue to semi-cleaned waters.

Since 1972, New Hampshire cities and towns, like their counterparts in all fifty states, have been receiving 75% federal grants to clean up municipal sewerage. But in less than a year, October 1, 1984, those grants are slated to drop to 55%. In New Hampshire's case, 73 towns which need pollution control assistance, will not be eligible for 75% grants. As the public sector drops its commitment to halting pollution, industry will be wondering why it should continue to invest in upholding its side of the pollution abatement bargain.

Fifteen years ago, an aroused and determined public, in New Hampshire and across the nation, mounted the campaigns needed to gain the support of state and federal legislators for water pollution control. The bargains that were struck, the commitments made in that legislation are being quietly undermined today.

Public concern has gone to new threats like hazardous waste dumps and acid rain with a measure of faith that water pollution was lawfully under control. Yet without an aroused public, there is little chance that the tide of new official negligence will be turned.

FIFTEEN YEARS AGO: COMMITMENT IN CONCORD AND WASHINGTON

The year was 1967. The New Hampshire Natural Resources Council was listening raptly to state Representative Thomas Urie, who had just returned from Washington where the National Wildlife Federation had awarded him $1,000 and a statue of a whopping crane for being the "Conservation Legislator of the Year".

Urie was nationally honored for his work as chairman of Governor King's Committee on Water Quality Standards. He spoke of rivers that would support trout again, and warned, "if we lose our lakes to pollution, we have lost a big segment of our economy. Recreation is the State's second largest industry".

Urie's Committee was determined to give a boost to the New Hampshire Water Pollution Commission's laborious task of setting water quality standards for streams and river segments. The way things worked was that the NHWPC studied a water body, estimated clean up costs, held hearings in the area, and then recommended classification levels of "A", "B", or "C" to the legislature. Once a classification was adopted, the Commission set a timetable for compliance. The Federal Water Pollution Control Administration gave municipalities 30% grants for construction of sewage treatment plants, the State of New Hampshire added another 20%, and communities paid the rest, if they could. No cleanup was required of industry. Progress was slow.

Citizens were calling for higher standards than those recommended by the State. Many water bodies were classified as "C" because of their load of industrial pollutants as well as municipal discharges. The public wanted better. So did the Governor. It didn't take the Urie Committee long to figure out that the major impediment to pollution cleanup was not political support nor technical know-how. It was cold, hard cash.

The Committee identified $100 million worth of pollution control facilities that should be built "immediately". They recommended raising the state's share from 20% to 40%. The Natural Resources Council responded enthusiastically, and spun off a Committee for Better Water to lobby the legislature for more money and authority for the Water Pollution Commission, higher classifications of water bodies, and discharge permits for industries.

The fact sheet sent to conservationists by the Committee for Better Water speaks to New Hampshirites of 1983 as aptly as it did in 1967:

> "While federal police power will be available if we fail at home, the Act (the Federal Water Pollution Control Act) makes it very clear that responsibility for deciding upon really high quality water and securing it rests with the state and its citizens. We should not expect such results from our state officials and our General Court unless enthusiasm is sustained at a high level."

The Committee for Better Water was successful in lobbying the General Court to implement the recommendations of the Urie Committee. All across the country, a similar determination was rising. There had been a national financial commitment to water pollution control for over ten years, but progress wasn't getting ahead of the problem. The Cuyahoga River burned, Lake Erie was deemed "dead", and from all quarters of the country, the political steam had come to a boil.

Nationally, the task of coming to grips with water pollution in a meaningful way fell to the hands of Senator Edmund Muskie's Subcommittee on Air and Water Pollution. The effort was bipartisan from first to last. It took three years. After all the hearings, and all the experience and evidence were laid on the table, the result was a consensus and commitment to some new principles. No longer would the "assimilative capacity" of water bodies be used to determine how much pollution to allow. Rather, in the words of Thomas Jorling, committee aid to Senator John Sherman Cooper (R) of Kentucky, "the right to pollute was repealed".

The Water Pollution Control Act Amendments of 1972 (PL 92-500) made it the law of the land that pollution was to be controlled at its sources. The Federal Government had to take a strong role. Compliance would be ensured by issuing enforceable permits. Deadlines were set. Polluters were given thirteen years, until 1985 to take all technically available measures to halt their pollution. An interim goal was set of achieving "fishable, swimable" (Class "B") waters by 1983. Toxic discharges, "in toxic amounts" were prohibited.

Industries would have to abide by the same basic treatment standards for their category of industry regardless of whether they were located in New Hampshire or New Mexico. Congress recognized that cities and towns would not be able to clean up municipal pollution without a substantial boost of funds. The federal share of wastewater treatment was raised to 75%, and what was quickly to become the nation's largest public works program began to roll.

The following year, 1973, EPA reported to Congress on the expected pricetag, state by state, for municipal pollution clean up. Five categories were assessed:

I. Secondary treatment for all municipal facilities by July 1, 1977, as specified by PL 92-500.

II. More stringent treatment, if required, to meet an approved water quality standard, or administrative or court order.

III. Rehabilitation of existing sewers to correct infiltration and inflow of ground water.

IV. Construction of interceptor and collector sewers to capture existing discharges in existing communities.

V. Correction of overflows from combined sanitary and storm sewers.

EPA estimated that the combined federal-state-local investment in New Hampshire would have a pricetag of $508 million if all categories were addressed, and $339 million if only the most pressing categories I, II, and IV were budgeted. The national total for categories I, II, and IV was $36 billion. Industry's costs would be above these totals.

Congress was determined to put up the money to get the job done. It authorized $18 billion for the first three years, 1973-1975. President Nixon vetoed the authorization as excessive, and Congress overrode the veto. Appropriations averaged $4.2 billion a year for the next five years, at which time the National Commission on Water Quality recommended that the 1977 and 1983 deadlines would have to be extended, but the federal funding level should continue at a rate of $5 to $10 billion a year for the next ten years. Actual outlays in the budget-conscious Carter years, 1976-1980, averaged $3.5 billion/year.

FOR NEW HAMPSHIRE, A DECADE OF ACCOMPLISHMENT

The investment in clean water in New Hampshire between 1972 and 1982 has been huge. More than $585 million has been spent in construction capital. Of this, $330 million came from Uncle Sam,

$50-plus million represents the investment of private industry, and the rest has come from the State and local communities. The benefits do not have such a clear cut pricetag, and many are beyond price.

The Androscoggin, once foul with paper company wastes, has improved substantially the 57 miles of its length from Lake Umbagog to the Maine border. Atlantic salmon and shad are returning to the Connecticut River, and when New England Power Company completes its $8 million fish ladder at Bellows Falls, they will be all the way up to Wilder Dam at Hanover. (In Maine, salmon have been back in the Penobscot River for 15 years, and draw fishermen by the thousands from all over the United States.) New Hampshire has plans for restoration of shad, herring, alewife, in addition to Atlantic salmon, and possibly striped bass and sturgeon.

Not only are fish returning to the rivers, people are too. At the time of the Urie Committee, the Pemigewasset River, in the heart of New Hampshire's vacation country, was little better than an open sewer. Today the Pemi runs clean. So do the Saco, and Lamprey. The Suncook is clean and the Warner. The Souhegan will be completely clean before the end of 1983. Great Bay and Little Bay, where ten years ago people dared not eat the oysters, are now excellent water.

Not only has Concord built its wastewater treatment facility, but substantial investment has also been made in correcting combined storm water overflows in the capital city. Concord residents are turning to the Merrimack River at their doorstep for recreation. Boat ramps are appearing. People are buying boats and spending summer evenings and weekends on the River, canoeing, fishing, sailing. There is talk of riverfront parks.

The engine that drives all of these accomplishments is the staff of engineers, planners, and scientists at the New Hampshire Water Supply and Pollution Control Commission. The fuel for the program has been the 75% federal dollar, and New Hampshire, like every other state, is bound by EPA's timetables, regulations, formulas, and enforcement.

Planning the Job to be Done

The 89-page Federal Water Pollution Control Act Amendments of 1972 placed substantial emphasis on planning, both as a means of identifying the most necessary and economical public works investments, and as a way to involve state and local officials plus the citizenry in the multifarious jobs of pollution control.

Area-wide Plans: Each state was to map itself into broad regions and do specific water quality management plans for each. A water quality management plan might actually encompass several interrelated river basins. For New Hampshire, these plans were done for the Connecticut, the Saco, the Androscoggin, the Merrimack -- which encompasses the sub-basins of the Baker, Pemigewasset, Lake Winnipesaukee and Winnipesaukee River, the Suncook, the Warner, the Contoocook, the Piscataquog, the Souhegan, the Spicket, the Nashua, Beaver Brook, and the Merrimack River itself -- and the Piscataqua and Coastal Basins.

New Hampshire conservationists who have not read the basin plan for the areas where they live are missing an important perspective and nuggets of information. Included in the plans is a report on every segment of river in terms of whether it meets its legally defined "A", "B", or "C" standards. In each case, where segments do not meet standards, the up-stream pollution sources are identified, the specific discharge of pollutants, whether by industry or municipalities, is listed, and corrective treatment scheduled.

The basin plans were a first step in putting the job of pollution control in context. The relative pollution loads from industrial or municipal discharges can be seen, as can the possible relationship between "point source discharges" and the more diffuse "nonpoint discharges" that come from agriculture, logging, construction, or failing septic systems. The quality of water in lakes over 20 acres is also summarized. Water supplies and ground-water recharge areas are mapped to identify where water quality impacts public health.

New Hampshire's basin plans were published in 1978 and 1979. Their value increases over time, as they provide a baseline from which to access the progress that has, or has not occurred.

"208" Plans: New Hampshire conservationists are perhaps most familiar with "208" plans, unpoetically named for the section of the Water Pollution Control Act that brought them to life. Two of the state's nine regional planning agencies developed 208 plans for their areas, and many citizens found themselves on advisory boards or working committees. Water Supply and Pollution Control Commission did five statewide 208 plans, on sediment and erosion control, urban runoff, and agricultural practices.

208 plans are aimed at nonpoint sources of pollution. The solutions for nonpoint pollutants are such things as local erosion control ordinances for construction activity, restraints on the use and storage of road salt, voluntary construction by farmers of berms along streams to retain runoff of manure and fertilizer nutrients, state enforcement of logging practices that construct culverts or bridges for stream crossings, use mild gradients for skidder roads, and reseed skidder trails at the completion of operations.

While the solutions to nonpoint pollution are much less expensive to implement than the sophisticated treatment facilities required for point discharges, in truth of fact, they are much more difficult to bring about. They are not as readily enforced as a discharge permit that measures the amount of pollution coming from the end of a pipe. They rely on numerous people at various levels of government and in all walks of life. They appeal to those who cite "live free or die", and do not want to be regulated from above. Yet too often the chance to prove that "we can do it at the local level" and "on a voluntary basis" means, in fact, that the promise is forgotten and nothing is done.

Federal grants to support the first steps of implementing 208 plans fell casualty to budget cutting economies in the Carter Administration. Absent the carrot of some financial assistance, or the stick of enforcement action, 208 recommendations are carried out only in pockets of true enlightenment.

Lake Studies: Ask New Hampshire's tourist which body of water he most cherishes, and the chances are great that he will name, not a river, but one of the State's sparkling blue lakes. Squam, Sunapee, Winnipesaukee, Newfound and 764 other lakes are a mecca for tourists and a treasure for every resident of New Hampshire. Many of them have been vacation spots since 19th century railroads first came north out of Boston. In the last twenty years, many vacation homes have been converted to year-round use.

In order to assess the extent of lake pollution problems, inventory studies have been conducted by WS&PCC biologists. So far, there has been enough money to study only 270 of the 768 lakes over 10 acres in size. These studies assess nutrient levels, whether increases in nutrients are natural in origin or come from man's activities on the surrounding land.

Pollution solutions vary from lake to lake. For the west side of Winnepesaukee, the answer was sewers. In the case of Kezar Lake in Sutton, there have been algae problems since the early 1960s. The application of copper sulfate helped for several years, then a bubbler was tried to de-stratify the lake water. Now with New London's sewage collected and piped to a treatment plant in Sunapee, the source of the majority of pollution has been removed. A portion of the bottom of Kezar Lake has been sealed with alum, and substantial improvement can be expected. Little Lake Sunapee has also been studied, and various potentials for development assessed. Local officials now know the kinds of growth controls they need to prevent additional pollution.

Municipal Cleanup Accomplishments

The big money, in terms of investment in pollution control has gone to the abatement of municipal discharges. Since 1972, thirty-nine treatment plants have been built or upgraded to meet secondary water quality standards.

"Municipal" means community, and "discharge" means sanitary waste, although municipal plants also receive industrial wastes which can be treated adequately if they are first "pre-treated" or if the plant is specifically designed to accommodate them.

Usually trunk sewers, called "interceptors", are needed and these also can be built with federal and state funding assistance. The smaller collector sewers down side streets or into individual subdivisions are not eligible for EPA or state money, and must be financed entirely by the community or property owners.

Each year, the state is told how much money it will be receiving from EPA, and within that total, develops a priority list of which projects can receive funding. There is never enough money to cover all the projects that are ready, but WS&PCC makes its decisions on the basis of the severity of pollution, numbers of people affected, as well as testimony made at public hearings. EPA pays 75% of eligible treatment costs. New Hampshire pays 20%. The remaining 5% is born by the locality.

Manchester: Manchester is the largest, and most costly, municipal treatment project in the state. A 26 million gallon a day facility was built in 1973, but it will need to be enlarged to take the waste from nearby Goffstown, Londonderry and Bedford. Enlargement is still cheaper than paying for separate treatment plants in each town. Interceptor sewers were built into the northeast part of the city in 1974. Other interceptors are under design. $25 million has been spent in Manchester to date, with another $55 million of work remaining to be done, and this total does not include correcting the problem of sewer separation. Manchester's sewer construction is expected to take ten more years, during which pollution of the Merrimack will continue.

Rochester: One of the few remaining communities in New Hampshire that still discharges raw sewage is Rochester, on the Cocheco River. Early in 1982, the city was about to go out to bid for constructing an "Advanced Wastewater Treatment" (AWT) facility. The city was alarmed, however, that the operating and maintenance costs, projected to be around $1 million a year would break the city budget, and WS&PCC balked at the $21 million construction estimate which would use up almost an entire year's allotment of federal funds.

Mayor Richard Green had campaigned for election in 1980 on the need to solve the city's water pollution problem. Now he provided the momentum and determination to arrive at a more economical course. Engineering consultants, Camp Dresser & McKee were hired, and after reviewing the alternatives, came up with a solution that will cost $9 million, and $375,000 for annual operations. A temporary waiver of the AWT requirement was obtained from EPA, so long as the facility is carefully monitored for compliance. CDM's design will lend itself to upgrading to AWT levels, should that become necessary.

Innovative and Alternative Approaches: Back in the mid-1970's, a suspicion was growing in EPA and in Congress that there was too much gold-plating going on in the municipal treatment program. There were examples from almost every state of plants that were over-designed either in terms of exaggerated capacity, or expensive, sophisticated treatment apparatus. EPA began to clamp down on the states who in turn clamped down on the engineering consultants hired to design the plants. Congress, for its part, amended the Water Pollution Control Act in 1977 (from then on it was called the Clean Water Act). New Hampshire Congressman Jim Cleveland was one of the leaders of the amendment to give an extra financial bonus to communities that come up with workable innovative approaches to sewage treatment or that come up with workable alternative designs for small communities.

The "I and A" (Innovative and Alternative) money, as it is called, cannot be used for any other purpose, and reverts to EPA if it is not used. Despite the 10% funding bonus, Piermont, Wakefield and Rye all voted at this year's March Town Meetings against their sewage treatment schemes. The story was not over, however, as special meetings were called in each town to review the question again. The second time around, each of the three decided to go forward after all.

Wakefield is on a small branch of a river with ponds downstream. The community would have to go to the expense of phosphorus removal if it built a conventional wastewater treatment plant, but its alternative proposal is for rapid infiltration into soils that are suitable. Wolfeboro has an alternative system where treated sewage effluent is spray irrigated on forest land. This scheme avoided the huge expense of removing nutrients and of building interceptor sewers to the Franklin treatment plant. Ossipee also has an alternative system which involves a large leachfield, rather than a "plant".

The only innovative project funded so far in New Hampshire is for Northumberland. The innovative nature of the project comes from the fact that its scheme has not been applied where winters are so cold. The effluent will be filtered and then flow down over an acre of grass hillside where nutrients are absorbed, and then into a ditch where it will be collected and chlorinated before discharge into a river.

Two other innovative designs died on the drawing table. Hanover tried a whole new concept of sewage treatment, a huge anaerobic digestion tank, but it never got beyond the pilot stage. Hillsboro wanted to try a solar powered digester, but the bids for construction came in at twice the cost of conventional treatment, and Hillsboro reverted to conventional.

New Hampshire has not been able to expend its potential allotment of I and A funds. For example $539,000 of these bonus monies will be spent in 1983 by Northumberland, Rye, Piermont, Wakefield, Haverhill Corner, and Sandwich.

$1,268,000 more would be available if the state had the projects on the drawing boards. "Its not that we don't like I and A", claims Bob Cruess, Assistant Chief Engineer for WS&PCC. "We are using up all the available alternative funds, but innovation projects take more staff time than we can provide, and not many selectmen in conservative small towns want to experiment."

Winnipesaukee Basin: The most ambitious and extensive pollution cleanup system in the state is in the Winnipesaukee River basin. Randy Monti, head of the Winnipesaukee project for WS&PCC, remembers how bad the pollution was as recently as 1976. The city of Laconia and the state school had significant discharges. In some places, raw sewage was running into brooks and the State had put out chlorine tanks to drop disinfectant into the brook water before it ran into the lakes. Now, 60 to 70 miles of interceptor sewers have been constructed to funnel those discharges to the central treatment plant at Franklin.

In the early 1970s, Lake Winnisquam was teaming with plants, highly eutrophic, on the way to becoming a swamp, due to the effluent from Laconia's inadequately treated sewage. Laconia became the site of a $3.2 million experiment in treatment technology. In the mid-1970s, there was a surge of enthusiasm among wastewater treatment professionals for a new "physical-chemical process" that was supposed to be the wave of the future. A demonstration project was built at Lake Tahoe. The Tahoe plant turned out to be a dud, too complex to operate and requiring endless quantities of expensive chemicals. Before the verdict was in on Tahoe, WS&PCC and EPA developed a similar plant at Laconia on the strength that Lake Winnisquam needed immediate relief. Once the truth was apparent, the Laconia facility was gracefully retired and a no-frills treatment plant built at Franklin instead.

Pollution control in the Winnipesaukee Basin involves an artful balancing between the need for sewers and central waste treatment and the ability to prevent pollution through nonpoint controls instead. Initially, twenty-one communities were studied. Of these, nine had pollution so severe and concentrated that sewers and central treatment were deemed necessary. The investment has been a hefty $65 million so far, which has included the treatment plant at Franklin and interceptor sewers from Tilton, Northfield, Franklin, Belmont, Laconia, Meredith and Gilford. Still to be finished are the interceptor lines from Sanbornton and Center Harbor, and some additional lines in Gilford, Laconia and Belmont. The projected capital pricetag for this work is a further $12 million. These costs do not include the local investment in sewers which feed into the interceptors and which are built entirely at community expense.

In 1978, as part of the 208 Plan and Environmental Impact Statement on the Winnipesaukee Basin project, The Lakes Regional Planning Commission, which had contracted and coordinated the various studies, outlined what is a classical debate for towns -- the positive and negative impacts of sewers.

On the plus side: water quality of lakes and streams would improve, with increased opportunities for fishing and other recreation; contamination would be removed from underground aquifers; health hazards eliminated; land values would increase and sewered areas become more attractive for economic development by commercial and industrial establishments.

On the negative side was another list: there could be long-term adverse effect on groundwater by diverting water out of the river basin; property taxes would go up and so would municipal budgets to pay for the sewers; new areas would be opened for development; population would increase and so would the demand for services; strip development could be encouraged in new areas.

The Commission advised communities that "municipal sewerage will be costly and is not the only alternative," and stated that "proper land use controls, locally adopted and effectively enforced, can minimize pollution". Model local ordinances were drafted and recommended to local officials.

"In the absence of strong local initiatives", the Commission warned, "the final responsibility for maintenance of New Hampshire's lakes rests with the N.H. WS&PCC". Thus, if towns did not want the State requiring them to build expensive sewer systems, they would need to apply some enlightened self-interest on their own.

Five years have passed and what has been the result? Algae blooms have virtually stopped, but strip development is blooming. The Gilford interceptor route is lined with condos, which in turn are bringing a new generation of impacts on water quality from their lawn fertilizers and power boats. When Center Harbor ties in to the basin system, sewer charges in the community will go up tenfold.

Actually, the land use controls recommended in 1978 have fared pretty well. For the 21 communities involved in the Lakes Region study, 248 town ordinances or regulations were recommended, and 91 were in place when the report was written in 1978. Since then 25 more have been enacted, primarily subdivision amendments on lot size/soils/slope, and wetlands protection. To date, not much has been done in the towns about shoreland protection, subsurface disposal, erosion and sedimentation and aquifer protection. While communities in the basin are trying to forestall the effects and expenses of more sewering, the jury is still out on how successful they will be.

Industrial Cleanup Accomplishments

The Clean Water Act requires industries, like municipalities, to obtain permits that stipulate allowable pollution levels and specify compliance

timetables. These permits are called "NPDES" permits, for the National Pollution Discharge Elimination System. EPA sets nationwide effluent limitations for each pollutant in different categories of industry -- for example, leather tanneries, pulp and paper mills, fertilizer manufacturers, and dry cleaning establishments.

The first round of permits were issued for less than a dozen conventional pollutants, like BOD (biochemical oxygen demand), total suspended solids, temperature, oil and grease, and heavy metals. Now EPA and the states are going into the second round of permits which will focus on an additional 126 "priority" toxic pollutants, both metals and organics. Dischargers must identify and control any pollutants known to be in their effluent. Further, under the Clean Water Act, industries have to apply "best available technology" which may mean a further capital investment.

New Hampshire's industries have spent between $50 and $60 million in required pollution controls since 1972. Over 200 industries in the state have permits. Not all of them require treatment, if, for example, their only discharge is uncontaminated cooling water. But of the 200, 35-40 have had to take significant corrective actions. Some examples:

*James River Corporation (formerly Brown Co.) in Berlin has spent over $16 million in pollution controls. The large 40 million gallons/day discharge now is clean enough for the Androscoggin River to exceed its designated class "C" water quality standard. Trucks work steadily hauling away sludge that formerly went into the River.

*Groveton Papers on the upper Connecticut River has spent over $11 million, some of which turned out to be misspent. Aeration equipment in their lagoons proved insufficient for the job, and lawsuits ensued. The company finally has brought the BOD and total suspended solids problems down to allowable levels within its permit.

* Another paper company, Monadnock Paper on the Contoocook River, is a much smaller outfit, but needed $1 million investment in pollution control. They have been in compliance since 1975, and WS&PCC officials speak highly of the company's positive attitude.

*W.R. Grace (formerly Hampshire Chemicals) in Nashua spent $2.4 million on settling lagoons for solids and a cyanide destruct system. Next they invested in a multi-million dollar incinerator which has been in operation for just a year. When EPA's guidelines for the chemical industry are published, the firm will have to make significant additional capital investment.

Not all New Hampshire industries have been willing to cooperate with pollution control laws:

*Webster Valve Company, in Franklin, did not bother to report its discharges or apply for a permit, until the firm's pollution was discovered in 1980 and they were threatened with enforcement action by EPA. The case now is in the process of settlement, and treatment will be required.

* New Hampshire's most notorious scofflaw has been A.C. Lawrence Leather Co. on The Ashuelot River in Winchester. The firm received a $238,000 grant from EPA to install and monitor equipment that would be used to determine EPA's national effluent limits for the tannery industry. Instead, A.C. Lawrence bypassed the treatment facility, falsified its reports, and ended up in Federal District Court. The company and five of its top officials were charged with criminal violations and fined nearly $500,000. The subject of indictment notwithstanding, A.C. Lawrence has also invested $1 million in an equalization basin that will improve their compliance record.

* The Mohawk tannery in Nashua has rarely been in compliance even though they have spent over $1 million on pollution abatement. They stalled for years because EPA had not issued tannery industrial effluent guidelines, and EPA was awaiting the ill-fated research at A.C. Lawrence. Now EPA's guidelines are out and Mohawk is finally designing a treatment facility.

Every three months, EPA publishes a "NPDES Quarterly Noncompliance Report" for each state. The most recent report for New Hampshire shows that out of over 200 industrial permitees, eight are out of compliance. Of these, two intend to go out of business. The other six are under close surveillance, negotiation, or enforcement from WS&PCC.

Not all industries have been enthusiastic about reporting their pollution and facing up to the conditions of NPDES permits. Some thought it would be easier to inject waste material directly into the ground, and then say they did not have a river discharge. Others found a municipal sewer line nearby and conveniently hooked on. In some places whole sewer lines have been eaten away by acids from these operations. Industrial discharges can wreak havoc in a municipal treatment plant. Not only is the health of plant workers endangered by unknown toxic chemicals, but often the chemicals knock out the plant's biological processes, impair its equipment, and destroy the public's investment in pollution control.

The Natural Resource Defense Council reports that nationally, "more than half, or 60,000 of the nation's industrial polluters dump their wastewaters into municipal sewage treatment plants". The Clean Water Act anticipated such ingenuity, and its requirements for industrial pretreatment, after years of slow motion from EPA, are just beginning to come into force.

Federal pre-treatment requirements only apply to communities large enough to have a municipal discharge of 5 million gallons/day or where industries are known to discharge significant amounts of toxics into a municipal plant. On the basis of the information available so far, WS&PCC has directed twelve New Hampshire municipalities to develop pre-treatment programs.

The core concept is that the municipality must take responsibility for pre-treatment of wastes coming to its plant. The first step is adoption of a local sewer use ordinance. The community hires a consultant to survey and analyze the pollutants from the various industries in the sewered area, and recommend methods of treatment and discharge. WS&PCC and EPA both review these reports for technical feasibility and legal enforceability, and the community issues permits based upon the results.

Are all pollutants covered? Far from it. New Hampshire municipalities are relying upon EPA's categorical pre-treatment standards, and standards do not exist for many toxics. Aluminum, for example is a pollutant for which EPA has no toxicity criteria.

So pre-treatment is in its infancy in New Hampshire, even though Manchester, with its hundreds of industries is the first city in the United States to have adopted a pre-treatment program. Manchester is confident that they have identified the industries and the discharges. Controls are in various phases of being applied, but it will be several years before new permit requirements are met by industrial dischargers. Meanwhile, EPA will be issuing additional categorial standards, and it will be the community's responsibility to keep abreast of these, and apply them to its dischargers.

Until standards are developed, and until control technology is in place, it is possible that toxic materials may still be discarded into the sewer systems and waterways of New Hampshire. Citizens can take heart that the most hazardous toxics are coming under regulation as hazardous waste and are prevented from leaving the site unless to an approved hazardous waste disposal facility. Nevertheless, many of the materials that are not yet under control are substances which, if you could pronounce their names and study their consequences, you would find that they are not at all good for you. Or for the environment.

UNDERMINING THE COMMITMENT

The momentum and money which have brought New Hampshire's waters to the improvements enjoyed today began to slow down in 1981. For the first time in over twenty years, there was a national Administration in Washington that did not have environmental quality high on its list of priorities. In fact, quite the opposite. Reagan Administration officials warned against stifling economic growth, and going too far with environmental cleanup.

The Administration did not, at first, attempt to weaken the popular Clean Water Act in Congress. Instead, the strategy was to "slow roll" implementation of the Act's provisions through a series of administrative measures, such as regulatory "review", in the Office of Management and Budget, delay of proposed regulations, rewrite of existing ones, cuts in personnel for research, enforcement and administration, cuts in grants to states for administration and enforcement, and cutbacks in the municipal wastewater construction grant program.

Rumors had emanated from EPA for a number of months, but it was not until October 1981 when Administrator Anne Gorsuch and her lieutenants presented their proposed Fiscal Year 1983 budget that the extent of the dismemberment became apparent. Of course, it was not only the Clean Water Act, but every environmental law on the books that was to be affected.

National environmental organizations went into high gear, publishing documents such as "Shredding the Environmental Safety Net; The Full Story Behind the EPA Budget Cuts", and "Indictment: The Case Against the Reagan Environmental Record". They lobbied Congress too, and the press picked up the trail. News people investigated and editorialized. Conflict sharpened between a highly conservative Administration, and a public zealous about its quality of life, especially clean air and clean water.

The figures tell the story: The 1981 EPA budget for clean water administrative grants to the states for program management, planning and clean lakes had been $95.6 million. President Reagan proposed dropping it in '83 to $40.8 million. Congress actually appropriated $57.1 million. For drinking water protection under the Safe Drinking Water Act, the figures are similar: the '81 EPA budget was $37.5 million, Reagan wanted to drop it to $29 million, and Congress acceded to the level of $34.3 million. Grants to New Hampshire for construction of wastewater treatment facilities dropped from $36 million/year to $22 million/year.

The general public was -- and perhaps is -- still oblivious to these changes. When members of Congress polled their constituents during the recession on how they felt about "government spending", a majority said "its too high". The public rarely got a chance to say which spending was too high nor which programs should be strengthened rather than weakened. People in New Hampshire, like their counterparts elsewhere, didn't see the connection between cutting the Federal budget, and getting pollution out of their favorite fishing spot.

A national Harris Survey, released June 11, 1981, showed that 93 percent of the public opposed relaxation of water cleanup requirements. Even given the costs involved, 52% thought the Clean Water Act should be made more

strict, and another 41% believed that abatement requirements should be maintained at current levels. Public support for clean water is very strong, but the public does not follow all the ins and outs of regulatory revision nor count how many pollution control officials are on the job in their states.

In New Hampshire, WS&PCC had a staff of 200 people in '82, and when the federal grant dropped in '83, the staff dropped 17.5%, to 165 positions. Of these, in 1983, only 136 are filled, according to the Commission phone list. Lost have been lab scientists, project engineers, field technicians and secretaries. The Special Session of the N.H. Legislature froze all state positions as of June 30, 1982, so that even if an employee moved and left a position open, that position cannot be filled.

The workload has not decreased during this period. In fact, the job has become more extensive and complex with the current addition of the second round of discharge permits that must cover dozens of toxic materials plus groundwater protection programs, new requirements for pre-treatment of industrial waste, and the need to combat illegal hazardous waste dumps.

The effects of this loss of staff are far reaching. They gut the ability of WS&PCC to assure the people of New Hampshire that sources of pollution are being detected or prevented, and that the public's investment in water pollution control is being sustained.

Monitoring Cutbacks: Monitoring of water quality is one of the first areas where the cuts can be felt. There is a regular staff of six, plus some part-time people, trained to go into the field and take samples. They are not keeping up with the needs. They try to handle the complaints that come in over the telephone, and must give priority to analyzing waters at hazardous waste sites. They should be monitoring groundwater quarterly. They should be doing sanitary surveys to make sure that subsurface systems are working, but they cannot.

At least once a year, the monitoring staff tries to take samples of effluent at wastewater treatment plants but they really cannot keep up with the small communities. More than half of the State's municipal permits have expired and need to be rewritten but the data is not available. The staff should be doing in-stream monitoring to determine whether water quality classification standards are being met. In-stream monitoring requires multiple sampling because of the intricacy of the water quality problems. A lot of money for corrective measures may rest on the decisions based on monitoring data.

At current staff levels, WS&PCC can only afford to do one detailed monitoring study a year. In 1981, they did an intensified four day monitoring project on a 25 mile stretch of the Connecticut River. They needed to get as accurate a picture as possible about pollutants in the area of Lancaster and Groveton to identify sources of contamination and support cleanup costs. About 3500 individual lab analyses were needed. Field work and lab support probably cost $50,000. Last year there was a similar effort on the Nashua. This year the intensified study was done on the Ashuelot River.

Despite these spot endeavors, the WS&PCC monitoring staff is not able to get in to the field enough to develop trend information. They have no way of handling unanticipated demands nor of detecting emerging problems. They should be checking New Hampshire waters for 65 different toxic pollutants listed by EPA but cannot do so. Toxic pesticides, heavy metals, and PCB's are persistent in aquatic environments. They accumulate in sediments or enter the food chain. Although problems like these probably exist in New Hampshire waters, the State does not have the resources to further explore the issue.

Without regular monitoring, there is no guarantee that permit conditions are being met, or that the huge investment made by industry and taxpayers is doing the job it was intended to do. This approach to pollution control could be compared to passage of a strong anti-crime law and then reducing the number of cops on the street.

Cleanup of hazardous waste sites has placed an incredible burden on the already lean staff in the groundwater and surface water permitting divisions. Seventy hazardous waste sites have been identified in New Hampshire, but only 10 of them have been decreed eligible for federal "Superfund" assistance. State monitoring, laboratory, and engineering personnel have been diverted away from water programs to deal with the imminent public health problems associated with hazardous waste sites. It is expected that this activity will continue for the next ten years.

Lab Cutbacks: WS&PCC's inability to keep abreast of pollution control intensifies in the state Laboratory. The lab is one of the most essential links in the pollution control system. It is there that water samples can be given a clean bill of health, or where the facts are found that could lead to enforcement, indictment, or expensive new investment.

The Laboratory must analyze water samples for pesticides, hazardous wastes, and solid waste leachate. By law it must analyze drinking water samples from public water supplies as well as private wells for the protection of public health. And it must provide backup to the Permits and Surveillance Division staff by analyzing river and lake samples, municipal and industrial treatment plant effluent, conventional pollutants, like BOD and pH, as well as the 126 priority toxic pollutants. Toxic chemical analysis is time-consuming and expensive. Each sample may cost a thousand or more dollars to run.

Two years ago, the Laboratory had 27 staff positions. Today it has 18, a 33% cutback. The drop is due to federal funding cutbacks, the state hiring freeze, and state pay increases which have had to be absorbed. The situation would be even worse were it not for three new lab positions supported out of hazardous waste cleanup funds. Federal water quality funds supported 7 people in '82. That number is down to 3 for '84.

The cutbacks mean that a lot of laboratory analysis that should be done cannot be. For example, public drinking water supplies have not been analyzed for pesticide residues for two years. While state biologists and the general public want more information about the effects of acid rain, the lab rarely has the time to do the work and it doesn't get done.

Because of budget cutbacks affecting the lab, New Hampshire is less and less about to uphold its end of the partnership to protect the public and the environment under terms of the Clean Water Act, Safe Drinking Water Act, as well as the statutes for control of solid waste, hazardous waste and pesticides.

Enforcement Cutbacks: One of the provisions of the Clean Water Act encourages states to take over full administration of the NPDES permit program. New Hampshire has never taken the initiative to do so, preferring instead to have a joint role with EPA in which EPA issues the permits and the State certifies that dischargers are in compliance with standards. Violations are then handled by the U.S. Attorney in federal court.

New Hampshire WS&PCC had traditionally taken a persuasive approach with industrial and municipal dischargers that has won their compliance without having to resort very often to enforcement in the courts. Not that enforcement action has not been taken. A.C. Lawrence, Mohawk Associates, and Watt Regulator are all firms whose persistent violations have warranted resolution by higher authority, and have been prosecuted or are under prosecution.

The State Attorney General's Office comes into action, not when NPDES permits are being violated, but in the far more frequent instances of violation of state statute RSA 149 which governs the use of both surface and groundwater. As public concern has grown over illegal dumping and contamination of groundwater, the number of cases has grown. Cases involving illegal discharge of hazardous waste, injecting toxic materials into the ground, contamination of drinking water, illegal use of pesticides, and failed septic systems all are handled by the Attorney General's Office.

The Environmental Protection Division of the Attorney General's Office formerly had five attorneys; however, one of them had been supported by EPA grant funds which were withdrawn. Now the Division is down from 5 attorneys to 4 -- a 20% cutback. The effect has been a significant slowdown in the wheels of justice. There are currently over 340 cases on active

file in the office. With each attorney responsible for the investigation and litigation of an average of 85 cases, it is easy to understand how the more significant polluters may get caught, but the smaller ones can drag on for months or years. They may be small from the perspective of an overworked office that has no other choice, but for the people downstream or in the vicinity of the pollution, the lack of prompt action fuels cynicism about government.

Slow enforcement, plus WS&PCC's inability to collect frequent monitoring data, means that there is slack in New Hampshire's pollution control system that can be exploited, whether intentionally or unintentionally, to the detriment of public health and the environment.

Treatment Facility and Sewer Cutbacks: Not only did EPA drop its construction grant funds to New Hampshire from $36 million to $22 million, but the federal agency had in mind other ways to reduce the nation's pollution control commitment as well. In 1981, Administrator Anne Gorsuch's deputy, John Hernandez, pushed through Congress some amendments to the Clean Water Act, including an amendment that slated EPA to drop its share of municipal treatment facility construction from 75% to 55% starting in '85.

If there had been a hue and cry, Congress might not have jumped through EPA's hoop. As it was, national environmental groups were out to lunch on this one. Many were pursuing other priorities. Others, like the lobby group, Clean Water Action, had been critical of over-built treatment facilities that encouraged community growth. They thought the construction grant program deserved clipping.

In New Hampshire, the response of WS&PCC was twofold. First, the agency reviewed all the proposed facilities which were under design to determine how cost savings could be made. At Keene, for example, which planned to build an "Advanced Wastewater Treatment" (AWT) facility, the state agency called for a redesign that pulled the level of treatment back to secondary. Studies will be undertaken once the plant is completed to determine if AWT will still be necessary. The projected flow was cut from 100 gallon/person/day to 75. These changes lowered the construction cost from $20 million down to $10.9 million. Claremont's facility was also redesigned with a resulting one-third decrease in size. Portsmouth is redesigning its facility and placing greater emphasis on energy conservation to hold down costs.

Portsmouth has a primary treatment plant at Pierce Island with discharges into a bay 90 feet deep. WS&PCC is seeking a waiver from EPA for required secondary treatment since monitoring is not showing pollution levels in the bay. The agency also demanded more concentrated performance from consulting engineers, so that some of the effect of the curtailed funding has been what every taxpayer appreciates: less fat and more productivity.

The other step taken by WS&PCC in response to EPA's further cutbacks has been to get as many community projects "grandfathered" as possible. According to EPA's rules, if a project is under construction by October 1, 1984, when the drop to 55% funding takes effect, then EPA will support completion of the project at the 75% level.

Each year, WS&PCC draws up a priority list of communities whose projects are ready for funding and which fit within the available federal-state budget. Public hearings are held on the proposed priorities before the agency negotiates its grant from EPA. According to the list now circulating within WS&PCC, the following pollution clean up projects will not be able to be grandfathered and therefore will only receive 55% federal funding:

Community	Treatment	Expected Cost
Canaan	Interceptors & Treatment	$3,060,000.
Pelham (I & A)*	Septage Treatment	180,000.
Exeter	Treatment & Interceptors	4,681,000.
Newport	Phase II Treatment, Interceptors & Sewer Rehabilitation	3,418,000.
Dalton	Treatment & Interceptors	1,329,000.
Monroe	Treatment & Interceptors	966,000.
Colebrook	Treatment & Sewer Rehabilitation	731,000.
Wakefield (I & A)*	Phase II Treatment & Interceptors	1,740,000.
Walpole	Interceptors	2,425,000.
Lancaster	Interceptors & Separation	1,500,000.
Seabrook	Treatment & Interceptors	7,737,000.
Pittsburg	Treatment & Interceptors	600,000.
Conway	Treatment & Interceptors	1,509,000.
Lincoln	Treatment & Interceptors	1,627,000.
Plaistow	Treatment & Interceptors	5,169,000.
Amherst	Treatment & Interceptors	4,119,000.
Andover	Treatment & Interceptors	2,569,000.
Ashland	Interceptors	208,000.
Atkinson	Treatment & Interceptors	3,813,000.
Auburn	Interceptors	4,824,000.
Barnstead	Treatment & Interceptors	2,195,000.
Bartlett	Treatment & Interceptors	1,851,000.
Boscawen	Interceptors	2,697,000.
Bradford	Treatment & Interceptors	2,585,000.
Bridgewater	Interceptors	983,000.
Bristol	Treatment Expansion & Interceptors	2,758,000.
Brookfield	Interceptors	900,000.
Brookline	Treatment & Interceptors	2,150,000.
Campton	Treatment & Interceptors	1,588,000.
Candia	Treatment & Interceptors	4,490,000.
Danville	Treatment & Interceptors	1,996,000.
Deerfield	Treatment & Interceptors	1,275,000.
Dublin	Treatment & Interceptors	1,949,000.
Dunbarton	Treatment & Interceptors	1,227,000.

Community	Treatment	Expected Cost
Effingham	Treatment & Interceptors	2,065,000.
Epsom	Treatment & Interceptors	1,761,000.
Errol	Interceptors	177,000.
Fitzwilliam	Treatment & Interceptors	1,590,000.
Francestown	Treatment & Interceptors	1,263,000.
Franconia	Treatment & Interceptors	1,187,000.
Gilmanton	Treatment & Interceptors	2,400,000.
Glencliff Home for the Elderly	Treatment	641,000.
Greenland	Interceptors	2,064,000.
Hampstead	Treatment & Interceptors	4,869,000.
Hampton Falls	Treatment & Interceptors	1,602,000.
Hancock	Treatment & Interceptors	895,000.
Hill	Treatment & Interceptors	1,022,000.
Hollis	Interceptors	256,000.
Hooksett	Treatment Additions & Interceptors	$9,867,000.
Jackson	Treatment & Interceptors	1,198,000.
Jefferson	Treatment & Interceptors	367,000.
Kingston	Treatment & Interceptors	4,837,000.
Litchfield	Treatment & Interceptors	2,281,000.
Lyme	Treatment & Interceptors	1,214,000.
Milan	Interceptors	624,000.
Mount Vernon	Treatment & Interceptors	1,401,000.
New Boston	Treatment & Interceptors	1,248,000.
New Ipswich	Treatment & Interceptors	1,137,000.
Newton	Treatment & Interceptors	3,812,000.
North Hampton	Treatment & Interceptors	6,261,000.
Northwood	Treatment & Interceptors	7,452,000.
Orford	Treatment & Interceptors	966,000.
Peterborough	Treatment Expansion & Interceptors	1,260,000.
Rollinsford	Treatment Expansion & Interceptors	3,074,000.
Sandown	Treatment & Interceptors	4,028,000.
Stoddard	Treatment & Interceptors	1,051,000.
Stratham	Treatment & Interceptors	2,231,000.
Sutton	Treatment & Interceptors	860,000.
Tuftonboro	Treatment & Interceptors	9,570,000.
Waterville Valley	Interceptors	237,000.
Webster	Treatment & Interceptors	908,000.
Windham	Treatment & Interceptors	6,440,000.
Woodstock	Rehabilitation & Interceptors	46,000.
TOTAL		$ 173,355,000.

* "I & A" Communities are slated to receive 65% federal money.

The 73 communities on this list which probably will not qualify for 75% federal funding face a huge hurdle. If EPA's funds drop to 55% and the state continues its 20% aid, then the towns' share will rise from 5% to 25%. For Newport the cost to local taxpayers will be $854,000; the cost to Seabrook taxpayers will be $1,934,000; in Hooksett the local cost will be $2,467,000.

According to state law, towns need a 2/3 vote for local sewer bonds. Even when the local share was only 5% of the project cost, a number of towns turned down their wastewater treatment costs the first time it came up on the town warrant. Often people living in outlying areas who will not be serviced by sewer vote against it even though its benefits extend to the whole town. WS&PCC has had to get tough with these communities and force them into special town meetings to face up to their pollution abatement obligations.

With the share of pollution control costs now rising so sharply on top of an already over-strained local property tax base, it doesn't take a pessimist to guess that towns are going to be reluctant to vote their local share. EPA's answer to the dilemma is to threaten to take them to court. If this sorry state of affairs were not enough, EPA is also considering a total phase-out of federal expenditures for municipal pollution cleanup.

Effect of Cutbacks on Industrial Compliance: If EPA's leaders were serious about abating pollution, they would acknowledge that the best way to guarantee compliance with a complex national law, like the Clean Water Act, is to spend the money to put the troops in the field to get the job done. This is what the National Commission on Water Quality had recommended.

> *The whole purpose of national legislation is to ensure that whether a community is rich or poor, whether an industry is influential or not, its pollution is halted. Instead, by cutting back on its administrative grants to state agencies, EPA is playing poor states off against rich ones.*

In the case of New Hampshire, there are four industrial waste specialists in WS&PCC. This small staff must be in the field, monitoring discharges of 200 permittees, conferring with industry on ways to improve its pollution abatement, and it must work in close partnership with EPA on questions of compliance and enforcement, and with the Permits & Surveillance staff on questions of human health and effects on fish and aquatic life. To do a good job, the staff should be inspecting permittees every two months. They cannot, nor can the lab analyze the samples they bring in.

Now the workload is getting significantly larger, as well as a great deal more complex. As EPA issues the effluent guidelines for the 23 primary industrial categories and the 126 priority pollutants, New Hampshire's industrial permits will have to be rewritten. Further, EPA and WS&PCC's industrial compliance staff must stay on top of the new pre-treatment requirements that are going into effect in twelve municipalities. It must give careful review to municipal sludge to ensure that cadmium or other dangerous materials do not arrive back in the environment at the end of the treatment process.

The job cannot be done despite the strong motivation and best efforts of the current staff. The issue, as described by Lynn Woodard, head of the industrial waste division, is that, "there is a lot to keep up with, and the field is moving very rapidly. You can't be at your desk reading the Federal Register (studying the terms of new toxic effluent guidelines) and out in the field solving problems at the same time."

What worries Woodard, in addition to the fact that his staff is too small to do its job, is the issue of equity. Many industries have invested substantially in bringing their discharges into compliance. How can they be expected to make the next level of investment, which also will be substantial, if they can look over their shoulders and see dozens of New Hampshire municipalities discharging raw or scarcely treated effluent into nearby streams and rivers? Just when the pollution control system should be reaching a widespread maturity of commitment and investment, Woodard sees it backsliding.

THE UNFINISHED AGENDA

Much of the power of the Clean Water Act has been derived from its goals. As stated by the Congress in 1972, it was the goal of the national water pollution cleanup program that there be "zero discharge" of pollutants by 1985 and that waters to a "fishable/swimable" (Class "B") level by 1983. Congress didn't say "do as much as you can", it said, "get the job done".

The Administration, however, administratively extended the deadlines: 1988 for the "fishable/swimable" standard, and 1995 for "zero discharge". How close will New Hampshire come to meeting the "fishable/swimable" goal by 1988?

The answer depends, firstly, upon the size of EPA's annual pollution control grant to the state, and secondly upon what happens after October 1, 1984 when the federal share is slated to drop from 75% to 55% of municipal pollution control expenditures.

The Municipal Sewage Treatment Agenda: WS&PCC has drawn up a list of the municipal treatment projects that will not be eligible for funding until '85. The list covers full project costs, and has a total pricetag of $354,267,000. It includes the $173,355,000 for projects that will only get 55% federal money plus $180,912,000 of grandfathered projects. These costs are estimated in 1983 dollars, and do not try to predict effects of inflation.

If we assume for discussion that all the grandfathered projects are funded first, before the 55% projects are begun, and if we also assume that the federal support to New Hampshire continues at its current rate of $22 million a year, then it is evident that the grandfather projects could be funded in

something over 8 years, by 1992. If we further assume that local communities pick up their 25% share of treatment projects when the federal support drops to 55%, and that federal dollars continue at their present rate of $22 million a year, with no change in state support, then it will take an additional 7 years to clean up the rest of the communities. Thus, the theoretical consequence of EPA's current funding strategy is that New Hampshire's waters may meet "fishable/swimable" standards not by 1983, or even 1988, but by 1999.

Even that prediction flies in the face of any realistic expectation, however. When EPA's financial support drops to 55%, the state of New Hampshire, and the affected communities are going to be up a creek with no financial paddle in sight. A few states, like Massachusetts, New Jersey, and Florida, have had a strong enough revenue base that they could pass state bonds to supplement EPA's dropping support, but the vast majority of states are in a position similar to New Hampshire's. "There is universal dismay at the state government level", according to Ed Hopkins at Clean Water Action in Washington, about the consequences of EPA's pullback.

The callousness of the budget arithmetic in Washington has everything to do with juggling a national deficit, and nothing to do with completing the job of pollution control. Over the last decade, the public has made a vast investment in clean water but the tragedy of the current situation is that the investment will begin to pay off only as the job is completed.

Furthermore, even New Hampshire's pricetag of $354,267,000 that would give all communities secondary level treatment, does not do the full job of halting pollution discharges. With a few exceptions, the above list does not include needed treatment in separating municipal storm and sanitary sewers, providing added treatment to overloaded treatment plants, and correcting hundreds of community septic system problems. In 1980, EPA did an estimate of those further costs which for New Hampshire would be an added billion dollars. (Another 34 years if EPA spends $22 million a year at a generous 75% level of support.)

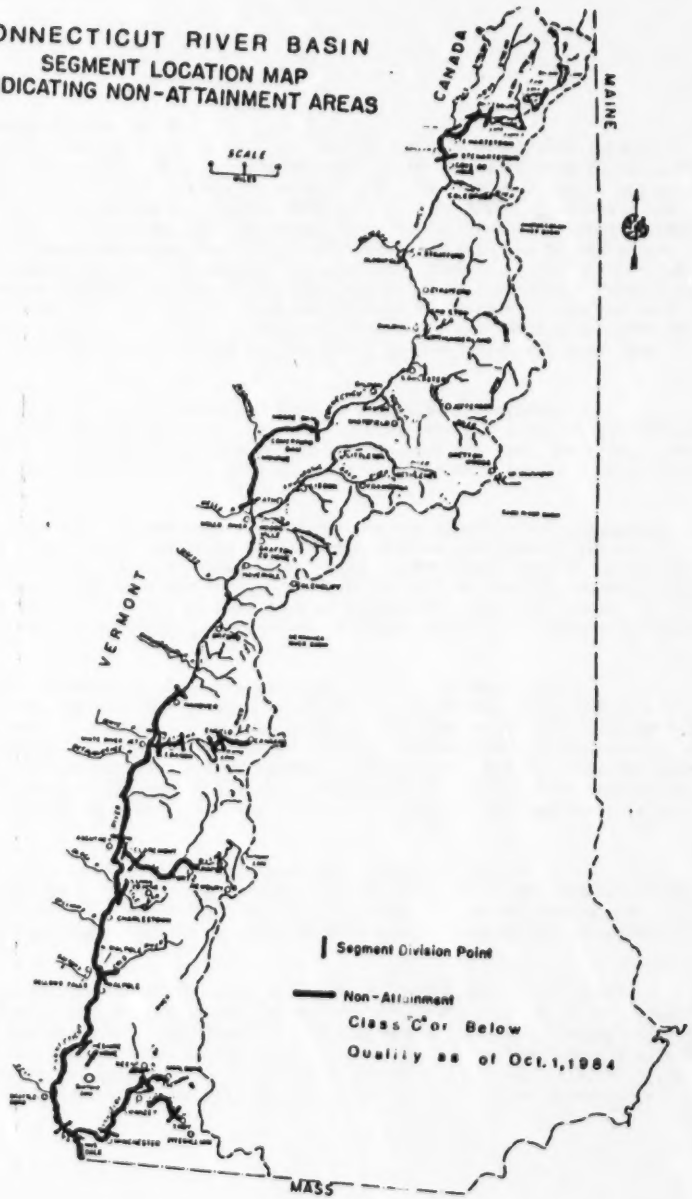
The unfinished municipal cleanup agenda can best, perhaps, be illustrated by looking at the Connecticut River basin. At substantial investment, fourteen communities have completed their pollution control projects, and another six will have started building theirs by October 1, 1984. In 1979, when the Connecticut River Basin Water Quality Management Plan was written, there were 321.5 miles of the Connecticut or its major tributaries listed as Class "C" or below. While exact accomplishments can only be determined by direct measurement, nevertheless a rough estimate can be made that current or planned construction will have cleaned up 168 of those miles by October 1, 1984.

Segments of the Connecticut River Basin that will not be cleaned when the federal funding drops to 55%, and the known causes of pollution are listed below:

CONNECTICUT RIVER BASIN SEGMENT	MILES - "C" OR BELOW	CAUSE
Connecticut River, Pittsburg to Stewartstown	14.5	raw discharge from Pittsburg
Connecticut River, Moore Dam to Ammonoosuc R.	20.5	Monroe sewage plus residual upstream
Connecticut River above Mascoma River	10 (approx.)	Orford, Lyme, Hanover sewage.
Mascoma River	10	Canaan sewage, plus combined sewer overflows from Lebanon
Connecticut River below Mascoma River	18.7	upstream contamination
Sugar River	16.8	Newport sewage
Connecticut River from mouth of Sugar River to Ashuelot River	55.4	accumulated contamination including raw discharge from Walpole and Bellows Falls, VT.
Cold River	3.4	Failing on-site systems
Connecticut River, mouth of Ashuelot to Massachusetts line	3.5	accumulated contamination
	157.8 miles at "C" or Below	

It must be emphasized that these figures represent an educated estimate, not a scientific measurement. They reflect discharges from Vermont, as well as New Hampshire. Nevertheless, they give a sense of proportion. Less than half of the miles of the Connecticut will have been raised to Class "B" standards from 1979 to 1984 when the funds will be curtailed. More than 150 miles will still be Class "C" or worse, and 9 communities will not even have secondary level of treatment. Two, Walpole and Pittsburg, do not even have primary treatment. They discharge raw untreated sewage directly into the Connecticut River.

The unfinished agenda can also be found -- in spades -- at the other side of the state on the populous lower Merrimack, Nashua, and Spicket Rivers. Almost all the communities on the Merrimack River and its major tributaries,



the Pemigewasset, Blackwater, Warner, Contoocook, and Souhegan, have been brought up to the level of secondary treatment -- that is, until the River arrives at Manchester.

At Manchester, the unfinished agenda begins to get expensive. The state's most populous city has a secondary treatment plant, and interceptors that serve only part of the city. The pricetag so far has been $25 million, with another $55 million scheduled. Manchester is one of those fortunate communities whose costs will be grandfathered, but still the city alone could swill up 100% of EPA's grant to New Hampshire for two years. Trying to be realistic, WS&PCC expects that it will be ten years before Manchester's sewage all has secondary treatment. The separation of storm sewers is also a problem in Manchester, but no one wants to talk about those costs now.

Farther south, the City of Nashua has completed most of its interceptor sewers, but the treatment plant is only a primary plant. (This means the sewage is settled and disinfected, but that's all). Another $21 million is needed to bring the plant up to secondary level, a sum which would be a year's worth of New Hampshire's share of federal funds. If storm sewer separation is added to the agenda, Manchester and Nashua alone could spend $100 million getting their sewage systems to a satisfactory level of service. These costs are not providing luxurious levels of treatment. They are only meeting the basic conditions necessary to protect public health.

Once the federal funding drops at the end of 1984, EPA has issued a number of criteria to make it more difficult to obtain support for storm sewer separation. Expensive justifications would be required, as well as the Governor's personal request. In New Hampshire, storm sewer separations have been done in Concord, Dover, Pittsfield, and Berlin, and are intended in Plymouth, Somersworth, Portsmouth and Exeter. For other communities, the chance of federal support is uncertain, and the pricetags are extremely high. If there is not storm-water separation, treatment plants are by-passed and overflow with combined sewage during heavy rains.

EPA and WS&PCC have understandably focussed on the biggest problems first. The largest treatment plants are built, or scheduled, but in many smaller communities, the cleanup job has not begun. It might be easier to persuade communities to take greater responsibility for pollution abatement if the foul waters stayed on their doorstep. But rivers keep rollin' along, and the unpleasant, unhealthful, and often dangerous problem parochially becomes someone else's problem.

Agenda for The Lakes: New Hampshire's rivers are not the only water bodies where the lessening commitment of the federal government is leading to a long-term promise of pollution. Lakes have always been the neglected stepchild of EPA's program managers, and that small degree of support is further dwindling.

The three biologists who work on pollution control for New Hampshire's lakes are the first to say that they do not have any coherent program for lake protection. They do not even keep up with the complaints that come in over the telephone, much less do what they would like to do, which is educate the public and local officials about the importance of keeping fertilizers, septic fields, or construction activity far away from lake margins.

Lakes sit in basins, and drainage goes downhill. Eventually contaminants on, or in, the surrounding soil end up in the lake. Property owners wonder then why they have algae blooms or new growth of pond weeds, not understanding that their own uninformed practices are often to blame.

The shortage of funds has meant that only 270 out of the 768 lakes in New Hampshire over 10 acres have been inventoried. Biologists stopped doing any field studies last winter because there was no money to cover gas mileage, nor was the lab able to provide analysis of the samples they might bring back. This summer, they have been able to get onto a few lakes, but still they have had to cut back on the breadth of analysis. No longer can they test for metals, nitrogen, or pH which tells the effects of acid rain.

Chief aquatic biologist, Deke Towne, at WS&PCC spends a lot of his time worrying about acid rain. "All we have done is record the impending disaster", he says. The lack of money to do periodic testing, to analyze what is happening to fish, and above all, what is happening to human beings brings him out of his chair to pace the floor. He talks of the prevalence of respiratory disease in the Northeast, and the possible correlation between aluminum and Alzheimer's disease.

The latter affliction is a form of brain damage that involves loss of memory and is a horrible tragedy for the families of its victims. Scientists are not certain yet of the cause or combination of causes, but high levels of aluminum seems to be a common thread among those suffering the ailment.

Deke Towne has been studying the waters of New Hampshire for more than twenty-five years. He has long-term measurements showing the decrease in alkalinity and rise in acidity of New Hampshire's waters. Aluminum is a prevalent element throughout the soils and rocks of the earth's crust. Deke Towne knows that acid dissolves aluminum and it runs into the waters. He worries that a stubborn civilization may be tinkering with damage to the human brain. He knows that the American Public Health Association recommends that drinking waters not contain more than 50 micrograms of aluminum per liter, and that many lakes and ponds in New Hampshire have 200 or 300 micrograms. And he is frustrated not to have the resources to gain better documentation, and that EPA is not putting its research money into this critical question of human health.

The Nonpoint Pollution Agenda: One of the key sections of the Clean Water Act has been Sec. 208 which launched studies, and hopefully control measures, for all those forms of water pollution that do not come out of a pipe.

Nationally, nonpoint sources account for more than 50% of pollution in our waterways. The Senate has been working to add further language to the Clean Water Act to deal with the nonpoint problem. The gap between identifying the problem and having an effective solution can well be seen in New Hampshire. Forestry provides a good example:

Piles of reports cite where, and how, forestry practices can cause sedimentation of waterways. There are piles of recommendations too. Foresters who have put their minds to the problem have come up with a lot of good suggestions. Many, in fact, are embodied in regulations adopted under state law, RSA 149.

But, Peter Allen, forest ecologist with WS&PCC puts his finger on the problem: "The State doesn't have the resources to enforce the law sufficiently, or educate the public properly". For example, there was only enough money to print and distribute 2,000 copies of an educational pamphlet on timber harvesting practices that control erosion, yet there are 4,000 to 5,000 logging operations a year.

Enforcement of the range of forest laws is in the hands of ten district forest rangers for all of New Hampshire. WS&PCC has only one field person to back them up on water pollution problems. He cannot cover the whole state, but WS&PCC is the only agency with authority to issue cease and desist orders. Furthermore, even when flagrant violators are referred to the Attorney General's office for prosecution, there are insufficient attorneys. Soil erosion has a lower priority than toxic pollution.

In dealing with logging operations, agricultural practices, and construction projects, the state should have staff in the field to provide education, technical assistance, and when necessary, enforcement. When painful choices have to be made and budgets are too small, frequently it is the field people who are cut. The Catch-22 of these decisions, however, is that the public has less contact with state personnel, sees they are not doing an adequate job, so blames them for incompetence, and vows not to raise the budgets for "a bunch of bureaucrats".

Agenda on the Supply Side: All the water cleanup activities described above are taking place in surface waters: lakes, ponds, rivers, streams, and New Hampshire's thin edge of Atlantic Ocean shore. Another type of pollution haunts the state, however, and that is groundwater contamination. Recently there has been a scare over possible arsenic in wells in Bow and Hudson. There are several large apartment complexes in Seabrook where the ground cannot accept more septic effluent, and now trucks daily haul sewage from the apartments to a treatment facility.

The scary part about groundwater contamination is that it happens invisibly and often becomes irreversible. In some instances companies have drilled a hole into the ground and released their wastes there rather than facing up to their responsibilities for pollution controls. Other common sources of groundwater contamination are septic systems too close to a neighbor's well, or a landfill whose pollutants gradually seep into the ground, and sites where manure, or road salt is stored.

All this pollution might just be laid to bad manners if it weren't that homeowners and indeed whole communities put wells into the ground and drew up water to drink, assuming it is as pure as crystals deep in the earth. Sixty percent of New Hampshire's population relies upon groundwater for its drinking water supplies.

The "Supply" side of the Water Supply & Pollution Control Commission does not have comprehensive information about where New Hampshire's underground aquifers are located, how much water they contain, how much they yield, and whether the waters are clean.

In 1979, the State Legislature established a Water Supply Policy Commission to make recommendations about what needed to be done. The Commission under the chairmanship of Philip Heald, reported two years later, and it dealt with such testy matters as a division of responsibility between the Water Resources Board and WS&PCC, the need to plan new regional water supply systems, as well as the need for WS&PCC to gather comprehensive information on the state's underground water sources.

There has been resounding silence from the state's political leadership ever since; however, the 1983 session of the General Court timidly resolved "that the findings and recommendations of the New Hampshire water supply policy commission be implemented when implementation becomes financially feasible."

The Supply side staff which monitors and safeguards existing water systems, like their colleagues in Pollution Control, are short of staff and unable to do their full job. They have lost four out of eleven positions funded under the federal Safe Drinking Water Act, and lost another four positions for water analysis in the laboratory. In 1983, the budget was cut 7% by EPA, which then proposed a 20% cut the following year. But even if EPA stays its hand, a 9% reduction will have to be absorbed for salary increases.

The Water Supply staff formerly inspected the water systems of 100 municipalities, plus 400 to 500 housing units, including mobile home parks, and 2,500 restaurants, campgrounds, ski areas and other facilities that serve tourists and transients. Now, even working full tilt, they can only cover 800 - 1,000 inspections annually. The rest are in the hands of the local health officer, who may or may not be doing the job.

In order to cope with insufficient personnel, the state has cut back on the number of contaminants it investigates as well as the frequency of tests. Three people are needed just to handle emergencies and public requests coming in over the telephone. They range from the nursing home that found leaves and twigs coming out of a tap, to the homeowner from Claremont calling because she discovered that transformers containing PCBs used to be burned on the site of her home and well. Some of these problems can be solved with a few recommendations over the phone. Others may take weeks of work.

Understandably, WS&PCC places more of its efforts on the 100 municipal water systems, since they affect the most people. Of these 100 systems, 65 are surface reservoirs that do not have treatment beyond simple chlorination. WS&PCC has urged the communities to undertake engineering studies either to provide adequate levels or treatment or convert to safe groundwater sources. The state hopes communities will voluntarily comply, because if they do not, there is insufficient staff to do the analytical work that would be needed to support enforcement actions.

Agenda for the Public: A little over ten years ago, the people of New Hampshire, and indeed the people of the whole country went to their state houses and went to Congress and set in motion a Clean Water Act, and parallel statutes at the state level, which set up a comprehensive and effective way to remove the scourge of pollution from the waters of our great nation.

All sectors of society agreed that the job was to be done. The votes were bipartisan. The commitments were made and accepted in a constructive partnership involving the federal government, state governments, local communities, private industry, and the American people and taxpayers. There is no evidence that public support for clean water has diminished, yet the federal government has decided to back out of its part of the partnership.

In a memorandum to state water pollution control agencies, EPA has asked them to appraise the effects of zero federal funding after 1988. Another memo talks -- not about EPA's abandonment of its commitments -- but about placing "special emphasis on gradually reducing the degree of local dependency on Federal funding".

There is a time in the cycle of pollution control when states should not be dependent on the federal government, and local communities should not be dependent on the state or federal government. Presumably that time should occur after all the effluent guidelines and standards have been issued by EPA and after all the treatment facilities have been built with federal and state financial assistance to meet those nationwide standards.

If the present course of events continues, the people of New Hampshire will find their expectations of safe drinking water and fishable rivers and lakes thwarted. The $585 million investment that has already been made in clean water in New Hampshire will not bring the economic returns it should, in terms of increased recreation and tourism, improved land values, and a more appealing environemnt for both residents and industry. Indeed, for lack of funds to do the job of water quality surveillance, public health may continue to be jeopardized.

EPA's pullback has been subtle and largely taken place behind the scenes. Pollution control programs are not being killed; they are just being slowly starved.

For New Hampshire people committed to clean water, one thing is clear: they must voice that commitment to their elected officials, because if the people do not make their wishes known, officialdom will have a hard time biting the bullet of public expenditures.

It is outside the realm of reason to expect that local communities dependent on the property tax can, or should, pick up the full tab of clean water costs. Another alternative may be to seek an increase in the funds that the State of New Hampshire puts into clean water every year. Back in the 1960s, the state used to pay 40% of municipal cleanup costs. Today it only pays 20%. The old tradition could be revived, and with it would also be needed increased funding for pollution monitoring in the field, analysis in the laboratory, and enforcement.

The third alternative would be to join with like-minded people in other states (there should be a lot of them), and go back to Congress and restore funding for the Clean Water Act and Safe Drinking Water Act, not to levels of extravagance, but to the basic level and timetable needed to complete the commitment of fishable/swimable waters by 1988 and zero discharge by 1995.

The fourth option would be to do nothing, and that is not really an option.

Sharon F. Francis
November 1983

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New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233-0001

Henry G. Williams
Commissioner

May 7, 1984

Mr. George F. Ames
Acting Chief
Policy and Guidance Branch (WH-595)
Office of Water Program Operation
EPA
401 M Street, SW
Washington, DC 20460

Dear George:

This is in response to the February 16, 1984 Federal Register Notice. I apologize for the late response but, based on my conversation with Charles Moser, I believe there may still be opportunity to make meaningful input.

To deal effectively with the issue of the appropriate Federal role, we need to examine preceived short-comings of the Construction Grants Program as it now exists. As Administrator Ruckelshaus has been quoted by the press, there have been instances where the Construction Grants Program has been responsible for delay in the implementation of water pollution control measures. The primary reason cited is that municipalities generally will not proceed without financial assistance so long as there is reason to expect that such assistance may become available. This can be the reason for delay only in those cases where the municipality has adequate financial resources and sufficient motivation to address the problem without federal financial assistance. Many other municipalities, primarily smaller, less densly populated ones, do not have the financial resources to implement needed projects without substantial assistance. Given these financial problems and in view of the difficulties with enforcement by one level of government against another, it is readily observable that without some form of federal financial assistance, such as the Construction Grants Program, construction of a significant amount of wastewater treatment facilities to achieve statutory compliance with the requirements of the Clean Water Act will not be realized.

Other reasons for delay are related to inadequate levels of federal funds availability, the requirement to wait on the project priority list for those funds to become available, and the complications involved in complying with the myriad of requirements that accompany construction grants assistance. For the construction grants program to be fully effective as a mechanism to achieve municipal compliance toward the goals of the Clean Water Act, these problems need to be addressed. Recognizing the above, it should be apparent that the most productive approach will be to repair rather than to replace the existing program.

The following are three problems which seem to be commonly recognized, together with possible approaches which should help to address them:

1. The program takes too much time.

Recent funding levels have been inadequate, by a wide margin, to meet the needs of projects which should be participating in the program. In New York State, for example, only one out of every five projects on the priority list can receive construction grants funding. The remaining 80% have to wait for funding in a later year, or proceed without construction grants assistance, or, more commonly, not proceed at all. It is imperative that the "real needs" for financial assistance i.e., needs to achieve statutory compliance, be identified. At its February 1984 meeting, ASIWPCA passed the attached resolution which defines an approach to identifying these "real needs". (The USEPA Needs Survey sets no limits of practicality or severity on needs and therefore includes many "needs" which will never generate actual structural solutions. This focus on total dollars which increase with inflation as fast as they are reduced by funding tends to foster a defeatist view of program accomplishments). It is my hope that the Association will undertake an effort which would lead to agreement on what is really needed to achieve statutory compliance by municipalities. This information could then be shared with appropriate parties for use in considering the most appropriate level of funding for financial assistance.

One way to avoid much of the delay, but one which has been generally rejected at the federal level, is to allow construction to begin without jeopardy to grant eligibility prior to the federal funds becoming available. New York State used the reimbursement provision of PL84-660 to initiate $3 billion in municipal water pollution control projects from 1966 to 1971. Although this established a large demand for reimbursement which caused much consternation with Congress and OMB, it also saved the taxpayers several billion dollars in inflation costs. Without that provision in the program in the 1960's, New York State's needs would probably at this point be at least $10 billion greater.

Many have cited the process of obtaining a construction grant as overly complicated and time consuming. The benefits of simplifying the process seems to be well recognized. Any measures which will lessen federal/state involvement (tampering, second guessing) in the project decision making process should expedite that process. To the extent possible, decision making authority and responsibility should be returned to the local level. Extensive and burdensome requirements and detailed reviews should, where possible, be limited. For example, USEPA review of Architectural/Engineering (A/E) procurement actions and subagreements has accomplished relatively little in terms of significant cost savings or improvements to project quality. Congress apparently recognized this since they eliminated Step 1 and Step 2 grants and instituted allowances to help defray planning and design costs in 1981. New York has suggested (see attached) that completion of this concept calls for establishment of a Step 3 allowance. This would complete removal of the regulatory agency from involvement in review of A/E procurement and subagreements for A/E services.

2. The program leads to costly projects.

The substantial levels of assistance for construction of wastewater treatment facilities strongly influences the decision process toward structural solutions in the consideration of alternatives. Municipalities participating in the construction grants program tend to hire a consultant with a construction background to address their problem. It is also observable that construction solutions generate larger fees for consultants than non-structural solutions. Consideration should be given to use of a portion of construction grant funds to provide assistance to state agencies to do pre-construction grant evaluations of municipal situations of non-compliance. Such evaluations could determine, as a

prerequisite to entry into the construction grants program, whether there is a real need for a structural solution. Such funds could also be used to provide enhanced training for better operation and maintenance of wastewater treatment facilities which should help minimize the demand for structural solutions.

3. Local government should assume more responsibility.

The need for local government to play a greater and more responsible role is well recognized and enjoys general agreement. However, that often flies in the face of the need to limit local cost so that appropriate solutions can be financially feasible for the locality (see general discussion above). One way to deal with this dilemma could be to transition from the current grant program to a loan program in which interest costs are substantially or totally subsidized by the Federal government. Low interest or no interest loans can, under appropriate terms, be an effective means of reducing the local financial burden. At the same time, they should also enhance local responsibility since the local government would be responsible for repayment of the full value of the loan. The attached paper discusses such an approach.

Since an immediate switch from grants to loans could frustrate the financial plans of projects already underway and since the various state programs need opportunity to adjust, any move from grants to loans must include suitable transition provisions, and must recognize that some communities must continue to receive some form of grant assistance to be financially capable of implementing their projects.

I hope that you will find the above useful and that we will have further opportunity to explore some of these concepts.

Sincerely,

W. F. Esmond, Jr., P.E.
Director
Bureau of Technical Resources
Division of Construction Management

Attachments: ASIWPCA Resolution
Step 3 Allowance Discussion
Federal Loan Program Discussion

cc: Ms. Price, EPA
Ms. Savage, ASIWPCA
Mr. LaRosa, CT
Mr. Ledbetter, GA
Mr. Brown, IA

Association of State and Interstate Water Pollution Control Administrators

ASIWPCA

WHEREAS The Clean Water Act Amendments of 1981 established a new compliance target of July 1, 1988 for POTWs still needing construction and instituted construction grants reforms that served to increase the pressure for POTWs to expedite grants projects through FY 85, and;

WHEREAS The Clean Water Act mandates uniform, minimum national treatment requirements for POTWs based upon a shared responsibility for facility financing such that local user fees remain affordable, and;

WHEREAS The adoption of the "National Municipal Policy" by the US EPA reinforces the need to direct program resources towards municipal compliance, and;

WHEREAS The Association is fully supportive of the National Municipal Policy in which the Association played a key development role, and;

WHEREAS The US EPA has embarked upon a special study of funding alternatives for POTWs in order to address future (post FY85) funding needs for compliance, and;

WHEREAS The Association fully supports continuation of funding to address municipal sewerage facilities needs, and:

WHEREAS States now manage the majority of the daily operations of the National Clean Water Program, including the programs for construction grants and NPDES, and through ASIWPCA have expressed strong support for coordinated action to achieve compliance requirements.

NOW THEREFORE BE IT RESOLVED THAT:

A. ASIWPCA finds it imperative that the Federal financial assistance program be coordinated with the National Municipal Policy to facilitate municipal compliance.

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B. ASIWPCA strongly recommends that a program under the Clean Water Act for providing federal funding assistance after FY85 for POTW construction include consideration of all of the following needs:

1. projects which are "grandfathered" under the provisions of the 1981 Amendments,

2. backlogged projects which have in good faith proceeded with facilities planning and design but for which federal grant funds have not as yet been available, and

3. Any other projects identified in municipal compliance plans submitted in accordance with the National Municipal Policy by October 1, 1985.

C. ASIWPCA also strongly recommends that any revisions to the federal construction grants program (loans, changes in the share ratio for grants, etc.) be phased in over a suitable transition period. Furthermore, the final form of federal funding should allow each state to tailor its financial assistance programs to meet individual state needs.

Adopted: February 16, 1984

PROPOSAL FOR STEP 3 ALLOWANCE

Subsequent to the 1981 Amendments to the Clean Water Act, in an early draft (February 1, 1982) of implementing regulations, an option was presented for §35.2025 which would have extended the allowance so that it would cover A/E services during building and the one year start-up period. NYSDEC in its February 26, 1982 comment letter on the draft regulations stated:

> §35.2025 (a): Including all A/E subagreements in the allowance would decrease the burden of paper work on the State Agency and prohibit engineers from deliberately padding Step 3 fees to make up for Step 1 and 2 work not paid in full by the allowance. Therefore, Option 2 is recommended. EPA is also encouraged to include legal, fiscal and administrative costs in the allowance.

This option was subsequently dropped by EPA without explanation.

As explained in our October 14, 1982 letter to Henry Longest (copy attached), NYSDEC continued to investigate this concept believing that it had substantial merit. The rationale is described in our October 14, 1982 letter.

In his May 17, 1983 reply, Mr. Longest seemed to recognize that there were advantages but indicated that serious pursuit of this issue would have to be addressed in the legislative rather than regulatory context.

Now that EPA is considering development of legislative proposals (Pg 6012 February 16, 1984 Federal Register), we suggest that the concept of a Step 3 allowance should be throughly investigated as one way in which to streamline the Construction Grants Program thus making it more effective.

New York State Department of Environmental Conservation
50 Wolf Road, Albany, New York 12233

Robert F. Flacke
Commissioner

October 14, 1982

Mr. Henry L. Longest II
Deputy Assistant Administrator
Office of Water Program Operations
401 M Street, S.W.
Washington, D.C. 20460

Dear Mr. Longest:

This Department is in the process of developing several policy and procedural changes in the management of the Construction Grants Program in New York State to conform with provisions of the Construction Grants Amendments of 1981 and the new EPA regulations. Several of these changes are being made without specific Federal requirement, in an effort to further streamline the grants program while improving project results. One initiative being investigated is State implementation of an allowance to cover Step 3 engineering, administrative, and fiscal costs. This allowance would supplement the Step 1 and 2 allowance, eliminating Step 3 A/E agreements and grantee administrative costs from detailed review.

A similar allowance was considered on a national level early in the year (February 1, 1982 draft regulations). Significant benefits to New York program management are anticipated from such an allowance. Accordingly, I request an indication of its acceptability.

The concept of a Step 3 allowance appears to be in conformance with the intent of the recent Amendments. Section 202(a)(1) of the Clean Water Act permits the Governor of a State to modify the Federal share of all future projects with the Administrator's approval. In addition the right of the State to certify less than the total project cost for Construction Grants participation is well established.

It is anticipated that reductions to both project workload and costs would result from utilization of a Step 3 allowance. Impacts include the following:

1. A Step 3 engineering/administration allowance would eliminate the need to review new engineering agreements. It has historically been difficult in NYS to control engineering costs using EPA procedures on review and approval of subagreements. Although this Department now questions an average of 9% of the costs to a new Step 3 engineering agreement, lengthy justifications of costs by grantees and later engineering cost increases eliminate much of the cost savings resulting from reviews.

Grantee actions in procuring an engineer would also not require review. Reviewing Step 3 procurement has been found beneficial only in those cases where a grantee selects a consultant other than the one that designed the project.

2. Closeout of a project would be greatly simplified, since Step 3 as well as Step 1 and 2 engineering and administrative costs would not be subject to audit.

   We question the benefits of auditing Step 3 engineering and administrative costs. The significant majority of costs disallowed at closeout are those associated with grantee administrative and fiscal costs. These costs are disallowed not because they are associated with ineligible work, but because they are not verified by proper accounting records.

3. Costs to consulting firms and municipalities associated with revising agreements and internal procedures to conform with EPA requirements on contracting and accounting would be eliminated.

4. Delays on grant awards or construction starts due to problems with engineering agreements would not occur.

5. The possibility that consultants and communities would attempt to make up for costs not covered by the existing allowance, by shifting work and costs to Step 3, would be eliminated.

6. A better working relationship between the Department's project engineer, the grantee and the consulting engineer would result from the elimination of the State as a third party to engineering agreement negotiations.

Full benefits of an allowance would not be realized for several years (when new Step 3 grants are audited). In addition, adoption of an allowance would not completely relieve the State of reviewing all engineering agreements, since agreement amendments under current grants will still be received (which today comprise 42% of agreements). However, the long term benefits appear significant enough to warrant consideration of an allowance at this time.

This Department has initiated work in developing a Step 3 allowance table. We would base the tables on historical data for grant projects. Using the Contract Management System, engineering and administrative costs vs. building costs for current and previous Step 3 projects are now being analyzed. To maintain consistency with the approach utilized for the Step 1 and Step 2 allowance and with the rationale under which a Step 3 allowance would be justified, we would expect to set the allowance at a level that would be significantly less than a municipality could reasonably expect to receive through participation in actual costs. We expect that this will also be necessary to assure that excessive grant amounts are not paid since there would be no audit of the costs covered by allowance.

October 14, 1982
Page 3.

If we implement this proposal, it would be administered in the same manner that the Step 2 allowance for a Step 2 + 3 grant is administered.

Since considerable effort will be required to prepare a formal request to establish the allowance, I would appreciate your response as soon as possible. Any suggestions or guidance from your office on implementing the allowance would be appreciated. Ms. Vanessa Duenas of my staff is in charge of development of this proposal. Please contact her, at (518) 457-3833, or me, at (518) 457-3891, if you have any questions.

Sincerely,

William C. LaRow, Jr., P.E.
Director
Division of Construction Management

cc: USEPA Region II - Ms. Schafer
USEPA Region II - Mr. Muszynski
USEPA Region II - Mr. DeLaura

18 (12/78)

New York State Department of Environmental Conservation

MEMORANDUM

TO: Fred Esmond
FROM: Howard Pike
SUBJECT: Capital Financing Delivery Systems

DATE: April 25, 1984

The provision of essential services or those mandated by other levels of government should not be interdicted by an inability to access capital. The antithesis of EPA prerequisite criteria (i.e., non-compliance, inequity and ineffectiveness) is in fact fostered by the search for optimum solutions, project priority lists and arbitrary Congressional and legislative control of topside funding limits. A capital delivery system should be constructed so to encourage initiative and creative local decision making. Good decisions are not necessarily those that are right initially, but rightable as circumstances permit and change.

Equal access to pooled funds, their availability based on a commitment to repay the debt, with a reduced or eliminated carrying cost would allow the prerequisites of equity, effectiveness and compliance to be met: equity because there would be equal access, effectiveness because financing would be available as needed and compliance because there would not be a financial disincentive to undertake corrective actions.

The establishment of an EPA Water/Sewer Infrastructure Fund which provides no interest loans to communities for infrastructure capital improvement, would result in a fully self-supporting, efficient financial delivery system. The fund, based on the National Infrastructure Fund concept developed for the Joint Economic Committee, would work as follows:

The EPA Water/Sewer Infrastructure Fund would be an independent off-budget corporation. It would therefore not have to show loan transactions in the federal budget. It would be subjected to budget approval for outlays to cover interest rate expenditures. The EPA W/SIF would:

- raise capital over a period of 10 years through annual bond sales, in the form of 20-year term bonds guaranteed by the federal government.
- lend each year the capital raised to State infrastructure banks with maturities that match the annual bond sale.
- receive from the treasury reimbursement for interest cost.
- repay the bonds as they matured.

The State water and sewer infrastructure banks would issue zero interest loans to localities subject to repayment in equal annual installments over 20 years to undertake capital improvements. User charges would be levied to repay the loans as they came due. Until that time, the State banks would "recycle" the local repayments to fund additional infrastructure projects. The State "banks" would be required to establish a sinking fund to assure repayment. The

assets of these sinking funds would be invested in Treasury securities. The process would take 30 years and is described in Table 2, with the assumptions in Table 1. Basically the following happens:

Years 1 through 10 - $3.5 billion annually is borrowed by the fund and is loaned to State Water and Sewer Infrastructure Banks (WSIB's). The total value drawn down would be $35 billion after 10 years.

Years 20 through 30 - $3.5 billion annually is repaid until the $35 billion is fully repaid..

Years 1 through 30 - interest carrying costs are picked up by the Federal Treasury. This totals $81.9 billion at 11.7%. However, because the bond is issued in the taxable market, a portion of it returns to the Treasury in the form of taxes. At a 30% average tax bracket, this amounts to $24.57 billion for a net federal expenditure of $57.33 billion. It is possible that the Federal Treasury will be further subsidized through additional taxes on the total construction program outlay, as well as economic multiplier affects. Also, because this effort generates an additional amount of construction activity particularly as compared to the existing construction grants program that otherwise may not occur, it will have additional multiplier effects. These are not measured (e.g., the tax generated on the increased activity of the loan program).

Because the "bank" establishes a commitment to a revolving loan program, the $35 billion will generate $82.814 billion in project financing assuming a 20-year project payback. In addition, there is a permanent pool of funds created of $23.43 billion because of installments to be paid after the initial $35 billion is repaid. The total construction program value is $106.27 billion. The maximum outlay by the Federal Treasury in any one year will be $4.1 billion.

In summary, the results of the described program follows, assuming the federal sector through the "WSIB's" pick up 100% of the cost:

- for each $1.00 of debt, $2.37 of projects would be financed.
- all loans would be repaid at the end of 30 years.
- for each $1.00 of debt, $.67 of loans outstanding would remain as a permanent infrastructure financing pool.

This is compared with the current EPA schedule which allows $37 billion to complete the construction grants effort. If this represents 55% of the need, the total program amounts to $67.273 billion. Various assumptions can be made regarding these figures.

Because of the current federal deficit and operating procedure, it could be assumed that all or a portion of the $37 billion must be borrowed. Conservatively, if 20% of the total federal budget is borrowed, that same percentage could be applied to the expected grants outlay (i.e., $7.4 billion). However, the federal government operation is now borrowing all of the funds necessary to finance capital construction projects. Because the federal government has not retired any federal debt in the past 20 years, save one, it is assumed that the interest on the principal will go on forever. In this proposal, it is carried for the 30-year term. It amounts to $110.4 billion.

In addition, the non-federal interests expenses must be considered. Principal and interest of 45% of the construction grants program must be provided by State and local taxpayers. It is assumed that these monies will be borrowed over 30 years at 9.5%. The combined cost is $90.81 billion. If New York State picks up 30% of the total construction cost and local governments pay 15%, the split would be $60.54 billion and $30.27 billion, respectively.

The loan program is therefore less costly than grants to the non-federal participants as shown in Item 6 of Table 3. Non-federal participants in effect lose $55.81 billion through the grants process as opposed to the loan program.

HCP:bjc
Attachments

cc: Mr. Torkelson
Mr. Barolo
Mr. Mt. Pleasant
Mr. Mack
Mr. Halton
Mr. Karath
Mr. Romer

Water Resources
4/24/84

TABLE 1

ASSUMPTIONS

Base Year = 1984

Last Year = 2014

Sinking Fund Starts = 1995

Total Number of Sinking Fund Deposits = 10

Total Lending Authority = $35.0 Billion

Debt Term of EPA Fund = 20 years

Number of Debt Issuing Years = 10

Period of State Bank Loan Repayment Years = 10

Interest Rates:

- 20-Year Treasury = 11.7%
- Sinking Fund Earnings = 11.7%
- EPA Construction Grants Program = 11.7%
- Non-Federal Interst = 9.5%

Treasury Debt MTR. = 30%

Interest Rate of State Bank Loans = 0%

Water Resources
4/24/84

TABLE 2

PROPOSED EPA: WATER A SEWER INFRASTRUCTURE CORPORATION (1)

	EPA Infrastructure Fund									Proposed Program Grant	
Year	Issued	Repaid From Sinking Fund	Balance	Project Value	Net Loan Balance	Sinking Fund Deposit	Sinking Fund Interest Income	Gross Federal Budget Cost	Tax Revenue Gain	Net Impact	EPA Grant Balance	Interest 11.7%
1984	0.0	0.0	0.0						.12		0.0	
1985	3.5	0.0	3.5	3.500	3.5			0.41	.25		3.7	.43
1986	3.5	0.0	7.0	3.675	7.0			0.82	.37		7.4	.87
1987	3.5	0.0	10.5	3.857	10.5			1.23	.49		11.1	1.30
1988	3.5	0.0	14.0	4.053	14.0			1.64	.62		14.8	1.74
1989	3.5	0.0	17.5	4.253	17.5			2.05	.74		18.5	2.16
1990	3.5	0.0	21.0	4.466	21.0			2.46	.86		22.2	2.60
1991	3.5	0.0	24.5	4.690	24.5			2.87	.98		25.9	3.03
1992	3.5	0.0	28.0	4.925	28.0			3.28	1.11		29.6	3.46
1993	3.5	0.0	31.5	5.170	31.5			3.69	1.23		33.3	3.90
1994	3.5	0.0	35.0	5.429	35.0				1.23		37.0	4.33
1995	0.0	0.0	35.0	1.043	33.84	1.16	.137	4.10	1.23		37.0	4.33
1996	0.0	0.0	35.0	1.096	32.69	1.16	.321	4.10	1.23		37.0	4.33
1997	0.0	0.0	35.0	1.152	31.53	1.16	.455	4.10	1.23		37.0	4.33
1998	0.0	0.0	35.0	1.208	30.37	1.16	.644	4.10	1.23		37.0	4.33
1999	0.0	0.0	35.0	1.267	29.21	1.16	.854	4.10	1.23		37.0	4.33
2000	0.0	0.0	35.0	1.334	28.06	1.16	1.092	4.10	1.23		37.0	4.33
2001	0.0	0.0	35.0	1.400	26.90	1.16	1.355	4.10	1.23		37.0	4.33
2002	0.0	0.0	35.0	1.470	25.74	1.16	1.649	4.10	1.23		37.0	4.33
2003	0.0	0.0	35.0	1.544	24.58	1.16	1.978	4.10	1.23		37.0	4.33
2004	0.0	0.0	35.0	1.621	23.43	1.16	2.347	4.10	1.23		37.0	4.33
2005	0.0	3.5	31.5	2.056	23.43		2.209	3.69	1.11		37.0	4.33
2006	0.0	3.5	28.0	2.825	23.43		2.055	3.28	.99		37.0	4.33
2007	0.0	3.5	24.5	2.783	23.43		1.887	2.87	.86		37.0	4.33
2008	0.0	3.5	21.0	2.730	23.43		1.694	2.46	.74		37.0	4.33
2009	0.0	3.5	17.5	2.664	23.43		1.488	2.05	.62		37.0	4.33
2010	0.0	3.5	14.0	2.583	23.43		1.253	1.64	.49		37.0	4.33
2011	0.0	3.5	10.5	2.489	23.43		.987	1.23	.37		37.0	4.33
2012	0.0	3.5	7.0	2.380	23.43		.697	0.82	.25		37.0	4.33
2013	0.0	3.5	3.5	2.251	23.43		.368	0.41	.12		37.0	4.33
2014	0.0	3.5	0.0	2.107	23.43		0.00				37.0	4.33
TOTAL	35.0	35.0		82.814	23.43			81.90	24.57	57.33		110.41

(1) In Billions of Dollars

TABLE 3

SUMMARY TABLE COMPARISON OF CURRENT EPA CONSTRUCTION GRANTS PROGRAM TO REVOLVING LOAN PROGRAM

		In Billions of Dollars	
		Loan	Grant
(1)	Total Construction Program Value	$106.0	$67.0
(2)	Total Interest Outlay		
	Federal	57.33	110.41 ***
	Non-Federal	0.0	60.81
(3)	Total Principal Outlay		
	Federal	0.0	37.0 **
	Non-Federal	35.0	30.00
(4)	Total Program Cost	92.33	237.51
(5)	Residual Program Value	23.43	0.0
(6)	Total Outlay		
	Non-Federal Expenses*		
	State	0.0	60.54
	Local	35.0	30.27

Footnote:

* Assumptions:

(1) State borrowing term is 30 years at 9.5% interest
(2) Local borrowing term is 30 years at 9.5% interest
(3) The State share is 30%
(4) The local share is 15%

** Principal remains unpaid at end of period.

*** See Table 2.

NORTHEAST OHIO REGIONAL SEWER DISTRICT
1127 EUCLID AVENUE – 5TH FLOOR • CLEVELAND OHIO 44115 • 216 781 6600

March 30, 1984

RECEIVED
FRD
APR 2 1984

Mr. George F. Ames,
Acting Chief
Policy and Guidance Branch (WH-595)
Office of Water Program Operations
Office of Water
EPA
401 M. Street SW
Washington, D.C. 20460

Re: Federal Role in Municipal Wastewater Treatment; Study

Dear Mr. Ames:

We appreciate the opportunity to comment on the study. We believe that for such an undertaking your activity schedule is quite compact. We trust that sufficient time will be given to agencies such as us and AMSA to review outputs of the study.

Our remarks are oriented toward several general areas where we believe attention must be given in order to obtain a realistic appraisal of the future role of the Federal government.

Federal Role

We remain convinced that Federal funding of municipal wastewater treatment works is an inherent obligation under the Clean Water Act. While the act poses economic tests for industrial compliance, no such tests were imposed on POTW's. One must conclude that Congressional intent in demanding secondary or WQS included an implicit obligation to fund such projects to completion. While the schedule for compliance is extended by limited Federal resources, this does not negate the obligation to render grant assistance.

We believe the study should contain a review of the history of the Act and an explanation of the link between grant funding and municipal compliance. The study should

explain that if grant funding for POTW compliance does not come from the Federal government then Congress must reduce the enforceable requirements of the Act. We believe your decision to limit Federal involvement to $37 billion is unwarranted. The study must discuss all needs for municipal compliance and set forth the option of reduction in requirements if Federal funds are not available.

We believe that seeking alternative financing methods from private sources or States begs the primary question of the Federal role. The Act sets the compliance standards and by definition obligates the Federal government to furnish funds to meet those standards. This relationship, not private funding, must be examined in the study.

Enforcement

The 1988 deadline, as with past deadlines, is extremely difficult to achieve for any community with a complex program. The first issue is that if construction is not present underway then meeting 1988 is nearly impossible given the realities of construction. Please keep in mind that most communities have had to segment and phase projects in order to accommodate the reduced level of funds available to the States in the past several years. Further, projects must be phased in order to keep plants in operation. It would be much easier to construct a project if the existing plants did not have to remain in service during construction. These factors delay compliance and must be accounted for in the study.

The continued reduction of available grant funds further delays compliance and makes achievement of 1988 a very slight likelihood for many communities. An enforcement approach that demands 1988 compliance without grant assistance will not ultimately work. The study should assess the potential for successful enforcement and present this issue to Congress.

Given past history, we feel that Congress will extend the 1988 deadline. The study should take a realistic look at the potential for extension including a review of the 1977 ESCL fiasco and the 301(i)(1) delays.

This should include a reminder as to the significant costs incurred by EPA and the States to issue ECSL's and consider 301(i)(1) extensions. In the end, those costs were wasted. The study should indicate the desirability of avoiding such costs, and recommend an orderly program to extend the 1988 deadline.

State Role

We believe the use of State funds should play no part in your study. We view State participation in the grants program as a purely local matter. The obligation of the Federal government remains constant with the ability of the State to pay of no relevance. On another level, we object to donor States being continuely asked by the Federal government to contribute additional funds while that State maintains a negative balance regarding Federal tax dollar outflow.

We believe that the ability of the State to assume more of the Federal repsonsibility is inappropriate for this study.

Federal Funding Limitation

On February 17, 1984, EPA proposed a rule which would limit the maximum amount of grant assistance. The limit (5%) fails to account for mandatory EPA "differing site condition" clauses in construction contracts. The impact of this proposed change must be assessed. The additional funds that must be paid for by the local users can be staggering under this proposal. It is reasonable to assume that the municipality may be required to absorb additional costs of 3 to 5%. We believe this proposal is in violation of the statutory 75 and 55% grant amounts. Again, we object to EPA's approach which reduces its legal obligation to the grantee.

Segments

It is not clear how the study will deal with segmented projects in terms of financial impact of 75% versus 55% funding. It must be kept in mind that, in general, the grantee did not wish to create segmented projects but was forced to due to State allocation constraints and phasing consideration in order to maintain existing plants in service during construction. We object to the potential penalty which may be imposed on grantee's that were forced tosegment projects and will end up with funding at only 55%.

Equity

POTW's with mandatory AWT requirements face an interesting question of equity if future grantees need only build secondary or less stringent facilities due to limited grant funds. Certainly, an AWT community will be at a user charge disadvantage to a secondary community with the inherent question of class equity. Further, industrial users may wish to move to the secondary community rather than pay the high strength AWT charges. Finally, if the AWT community receives reduced permit limits does the removal of AWT facilities from service require repayment of the Federal share to EPA?

The other side of equity relates to the obvious question of communities that receive no assistance or only 55% funding to build projects versus the 75% funded POTW's. This is important if the reasons for 55% or no funding results from regulatory agency created delays such as EIS requirements, facilties plan reviews, SSES analysis, sludge management plans and air permitting questions. No grantee should be punished for regulatory agency delays.

Local Financing

The District has fully assessed our financial condition in a long range plan. We are committed to the abatement of pollution in our area. We are extremely concerned that the changes in Federal funding will compound the burden upon our users and cause our construction program schedule to be further extended. Further, reductions in the construction grants program have not a single impact on only a wastewater treatment agency but also on the rest of the area agencies. We work closely with other agencies in a community capital improvement strategy and know first hand that infrastructure improvements are being adversely effected by reduction in Federal funding. This forces the agencies to compete for limited local resources. We believe that your study must include within its scope an evaluation of total Federal program reductions on the whole community and the ability of citizens to pay the increased cost without the benefit of reduced Federal taxes. The study as presently envisioned is not sufficiently comprehensive.

In summary, we trust this study will be conducted so that the problems facing POTW's and their users are evaluated in a realistic manner. We believe the Federal government is obligated to continue the grants program, and we remain disheartened at efforts to end

that obligation in mid-course while forcing the local users to pay the full cost of meeting Federally mandated standards.

We look forward to reviewing the outputs of this study, and should you have any questions, please call Bob Gill of my staff.

Very truly yours,

NORTHEAST OHIO REGIONAL SEWER DISTRICT

Erwin J. Odeal,
Director

EJO/REG:amr

cc: AMSA
K. Pew
L. Stumpe
R. E. Gill

NORTHWEST ARKANSAS REGIONAL PLANNING COMMISSION
P.O. BOX 745 — SPRINGDALE ARKANSAS 72764 — (501)-751-7125

March 29, 1984

RECEIVED
FRO
APR 5 1984

Mr. Charles Mooar
Office of Water Program Operation
Environmental Protection Agency
Washington, D.C. 20460

Dear Mr. Mooar:

As Chairman of the Northwest Arkansas Regional Planning Commission, I am responding to the study effort by EPA to determine the future role of the Federal government in municipal wastewater treatment facilities. At the March 22, 1984 meeting of the Regional Planning Commission, I was asked to forward the following comments on behalf of the twenty-five units of government in Washington and Benton Counties. The Regional Planning Commission was organized in 1966 to assist local units of government with an emphasis on addressing problems of a regional nature.

Wastewater management has been a long time study effort by the Regional Planning Commission. The first water and sewer report was completed in 1969 and by 1973, the Commission adopted the first 201 water quality plan in the State of Arkansas. Wastewater management is a serious problem, one which will take a sustained effort, at all levels of government. It is clear that the goal of the current administration is to reduce financial assistance to local units of government as indicated by the statement, "The overriding goal of Federal involvement in the program is the long term self-sufficiency for localities...". This is an admirable goal, one which should apply to all levels of government, including the Federal government, but is it a realistic goal? Considering the critical nature of the problem, the fact that the Federal government is establishing the water quality standards, the tremendous capital outlay involved and the restricted financial situation of local units of government, I do not view eliminating financial assistance to localities to build, improve or replace wastewater treatment facilities as realistic.

Let me cite an example of the magnitude of the problem. An area City (population 36,000) is nearing the end of the Step-3 process, having spent $1,500,000 to get to that point. The estimated cost of reconstructing the existing plant to meet the Clean Water Act standards is $28,000,000. The operation and maintenance cost is estimated at $2,000,000 per year, which over the expected life of the plant will exceed the construction cost

PLANNING-MANAGEMENT-IMPLEMENTATION
A CONTINUING PROCESS

by $12,000,000. Add the cost of this facility to the cost of the other essential services; Police $1,500,000, Fire $1,250,000, Streets $2,100,000, Sanitation $2,000,000, and Water and Sewer (less capital expenditures) $4,200,000 and the per capita cost is unrealistic without some form of outside financial assistance. The City does not have the option of adjusting the cost of wastewater management to their ability to pay because the standards which translate into cost are mandated. The City is further constrained by law to not spend or obligate themselves to spend more in any one year than the actual revenue for that year. This places local government in a very precarious position, the Federal government can bankrupt them anytime they wish by mandating standards with no financial assistance. This situation is common to every local unit of government in the United States.

Have we lost sight of some basic principles which govern the conduct of government in this country? The financial assistance the Federal government is considering cutting is money that is collected from the citizens, by the government, to provide for their welfare. I fully realize, that, there is a limit to the financial resources, therefore, there is a limit to the financial assistance. With limited resources it becomes a matter of establishing priorities for the distribution of funds. I cannot think of a greater domestic threat to this country than the pollution of the water supply. Congress recognized the seriousness of the problem and established the priority with the passage of the Clear Water Act. Congress also recognized the financial limitation of local government in dealing with wastewater management and committed Federal funds to insure the future water quality of this country. The financial condition of local government is worse today than it was when the Clear Water Act was passed and the withdrawal of Federal financial assistance will only put the solution to the problem further out of the reach of local government.

It seems to me that funds collected from the citizens of this country should first be allocated to the health and security of those same citizens. The quality of water in this country cannot rank second to any other cause. EPA should place a greater emphasis on funding assistance to local government for wastewater treatment facilities. The 75 percent funding level should be reinstated and the smaller units of government should be added back to the funding list, at least for assistance in connecting to an existing system.

Thank you for your consideration of these comments.

Sincerely,

Charles McKinney

Charles McKinney
Chairman

CM/djm

PIMA COUNTY
WASTEWATER MANAGEMENT DEPARTMENT
131 WEST CONGRESS
TUCSON ARIZONA 85701

GEORGE A. BRINSKO
Director

PH 792 9676

March 29, 1984

George F. Ames, Acting Chief
Policy and Guidance Branch (WH-595)
Office of Water Program Operations,
Office of Water
U.S. Environmental Protection Agency
401 M. Street, S.W.
Washington, D.C. 20460

RECEIVED
FRO
APR 3 1984

Re: Federal Role in Municipal Wastewater Treatment; Study

Dear Mr. Ames,

Pima County Wastewater Management Department is pleased to offer comments regarding EPA's study on the Federal Role in Municipal Wastewater Treatment. Since the Construction Grants Program was developed, Federal Funding has been utilized to assist local communities in meeting the objectives of the Clean Water Act.

If local communities are to achieve long-term financial self-sufficiency, Federal involvement will be required to a great extent: first, to continue to enforce the requirements of the Act; second, to implement the mechanisms for attaining self-sufficiency; and, third, to effect changes at the Federal level which will facilitate self-sufficiency.

The following are our concerns:

1. Federal Assistance is currently provided to municipalities who have documented NPDES violations. Some state priority systems reward these violations by assigning higher priority values; therefore, increasing the potential for Federal Assistance. Financial Assistance for these violations should be eliminated.

2. Several municipalities implement user charge systems, water quality management programs, water conservation and other programs as a condition for Federal funding. In promoting long-term self-sufficiency, implementation and enforcement of these projects will require continued Federal participation.

3. The current policy for user charge systems require each user to pay for the proportionate cost of operation, maintainance and replacement of the treatment works. This requirement falls short of the self-sufficiency goals for two reasons: a) The user charge system does not provide for operation, maintainance and replacement costs of the entire wastewater system, including the conveyance system and overhead support; and b) replacement is defined as "life of the treatment works", therefore, eliminating the funding of long-term capital costs for new facilities beyond design life.

4. Financial long-term self-sufficiency will require users to pay the full share of all treatment and conveyance costs as well as capital replacement costs. Although this is an equitable method of providing adequate protection of the nation's waters, local acceptability and effective enforcement through local ordinances may not be politically viable. Since most elected officials are responsible to the electorate, user charge increases that achieve self-sustaining goals are difficult to effectuate.

Pima County Wastewater Management Department appreciates the opportunity to comment on the study elements and looks forward to your results.

Very Truly yours,

George A. Brinsko by JH

George A. Brinsko,
Director

GAB:vrd

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Cleaning The Water When The Well Runs Dry

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The Congress and the Environmental Protection Agency (EPA) will probably make several critical decisions in the next year which will reveal whether the July 1, 1988, deadlines for municipal compliance with the Clean Water Act's (CWA) National Pollution Discharge Elimination System (NPDES) permit requirements will be taken seriously. With the need for construction to satisfy the NPDES permit requirements for publicly owned treatment works (POTW) estimated to be almost $120 billion, the Congress just voted at the end of 1981 to curtail funding for construction of POTWs under Title II of the Clean Water Act. In so doing, the Congress made it plain that the federal government considered compliance with the enforceable provisions of the CWA to be an important but primarily local responsibility. This, naturally, has placed the economic burden for meeting the NPDES permit requirements squarely on the shoulders of municipalities which are either unwilling or unable to shoulder the fiscal responsibility through traditional means.

The NPDES permit program is in serious trouble. The General Accounting Office (GAO) matter of factly explains the problem:

> "The NPDES permit program has been in existence for more than 10 years but is still experiencing problems that reduce its overall effectiveness in controlling water pollution from municipal and industrial point sources. As a result, the intended uses of some waterways for economic and recreational activities may be compromised.
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> ***
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> "Enforcement of NPDES permit limits also poses problems. While the ultimate goal of the enforcement program is to ensure compliance with permit limits, current enforcement practices in many cases allow permit noncompliance to go on unabated for extended periods of time -- in some cases, years. Noncompliance by municipalities poses special problems due to their reliance on federal funds to upgrade their treatment facilities. EPA does not have the authority to fine noncompliers directly without referring the matter to the Department of Justice for litigation. In addition, resource shortages at both the federal and state levels have translated into an overall reduction of enforcement efforts."1/

Since 1972, EPA has obligated over $45 billion for construction of POTWs; yet, the EPA Needs Survey for 1982 reveals that $118.4 billion is needed for the construction and repair of municipal wastewater treatment facilities and sewers between the years 1980 and 2000. Further, by 1982, only 2,000 of 18,000 POTWs planned had been completed.2/ In addition, many of the plants that were built under the construction grants program continuously fail to meet their NPDES permit requirements.3/

In late 1981, the Congress approved reduced funding of the construction grants program to $2.4 billion annually until 1985.4/ There is significant uncertainty about future funding of the program beyond 1985.5/ Clearly, the federal role in POTW construction and repair cannot come close to meeting the needs by the current 1988 deadline. There is a possibility that the Congress may extend the 1988 deadline or increase federal funding in the process of re-authorizing the Clean Water Act,6/ but this is unlikely given the very recent changes to both these matters in 1981. There is also the possibility that the Congress or EPA will relax the NPDES permit standards, but this would be politically unpractical and not desirable from an environmental protection perspective.

The shortfall in funding leaves municipalities in a bind. They are under mandate to provide secondary treatment7/ by July 1988, but many communities cannot rely on EPA funding to pay for some or any of the costs of construction of POTWs. For those communities fortunate enough to receive EPA funding after September 30, 1984, they can only expect 55% federal funding instead of 75% funding.8/ These communities will also find that the Congress limited the number of eligible categories for funding. In addition, many communities are facing financial difficulties without regard to the Clean Water Act's obligations. While in the past these communities could raise capital through the issuance of long-term municipal bonds, restraints on the amount of capital debt permitted by municipalities coupled with the desire to avoid presenting a bond referendum to the voters have caused municipalities to look for alternative means of financing wastewater treatment construction and replacement.

So, what is to be done? One idea which has attracted a lot of recent attention and deserves serious consideration is to create statewide infrastructure banks. The State of New Jersey is considering legislation which establishes such a bank to operate a revolving loan fund to be used for any number of environmental and transportation needs. The bank would issue zero or low interest loans to municipalities for a fixed portion of project costs. As repayments are made, new loans can be made.

To capitalize the bank initially, there is interest in amending the CWA to provide for seed funding. Funding would also come from state federal obligation bonds and from specific state appropriations. This will not be an easy task to accomplish at the federal level. At the state level, New Jersey has been considering a state infrastructure bank bill designed to fund a variety of public works type projects. The New Jersey Department of Environmental Protection (NJDEP) is a major supporter of the legislation given the redirections in federal assistance. NJDEP officials estimate that it needs an additional $2.4 billion for wastewater treatment construction in order to satisfy Clean Water Act requirements. Yet, current funding levels only allow for construction of 24 out of the state's 237 needed POTWs. With enactment of the infrastructure bank, it is believed that construction on all 237 projects can begin within the next decade.9/

Despite the promise for relief offered by the infrastructure bank, the New Jersey Legislature has expressed misgivings about drawing funds away from projects which were destined to receive federal construction grant funds and seeing them converted into loans. For these and other reasons related to the mechanics and limitations of authority of the bank, the New Jersey bill was sent back to committee last term.

Still, the infrastructure bank idea is receiving considerable favorable attention in Washington, D.C. Passage of federal legislation to establish or fund such an institution is possible during the next session, but more realistically the bank will not be at the top of the environmental issues list. As Congress sorts out the problems of whether to enforce NPDES permit requirements and how much more grant funding is or should be made available, there will come a time that the subject of the infrastructure bank will be an important topic.

The New York State Governor's Office has introduced legislation to create a State Water Finance Authority (Authority) which would be empowered to issue up to $4 billion in debt to help communities finance the construction and rehabilitation of water and sewer systems. Creation of the Authority would provide a vehicle to circumvent the New York State constitutional prohibition of the sale of revenue bonds by local governments in New York. Local communities could issue bonds through the Authority which are backed by water and sewer charges. Because of this backing, investors would tend to find this form of revenue bond more attractive than general obligation bonds.

The New York legislation would have three alternate financing mechanisms. First, the Authority would function as a bond bank to provide loans to municipalities for particular water and sewer projects. The Authority would also require the community to agree to levy sufficient water and sewer charges to cover operation and maintenance costs, debt service, and replacement costs. Second, the

municipality could lease its water and sewer systems to the Authority in return for the Authority's agreement to finance water and sewer improvements. The lease would contain provisions comparable to the above described financial commitments between the Authority and the community. The third approach contemplates municipalities creating independent local water and sewer boards which would be responsible for levying and collecting water and sewer fees. The Authority would issue revenue bonds to finance local needs and, concurrently, enter into agreements with the community and boards to ensure that operation and maintenance, debt service, and replacement costs will be covered.

This legislative proposal was introduced in 1981 but failed to receive full consideration. It was re-introduced in 1982 but was not passed, primarily because it raised concern among fiscal conservatives that the Authority could interfere with local perogatives and create debts sufficient to jeopardize credit ratings for the state and local governments concerned. The proposal still has strong supporters, however, and is likely to be on the legislative agenda again.10/

A third idea which is attracting considerable attention is privatization. The concept was recently adeptly described by the Executive Director of the Camden County Municipal Utilities Authority, a POTW owner which recently attempted to construct a POTW using this technique:

> "'Privatization' is a financial concept whereby private industry, either through a single firm or a joint venture of several firms, would design-finance-construct-own and operate, on a long term basis, facilities for public use like the treatment plants proposed by our Authority. The concept is based on the premise that, where a public agency loses substantial public grant funding, it is then faced with 100% public funding of a project on its own. In that situation, the private sector may be in a position to design the facility at a lesser cost, construct it in a more timely and cost effective manner, operate it more efficiently at a lesser cost, and above all, provide the capital funding at a user cost to the consumer lower than the public agency can provide using the normal route of 100% public bond revenue."11/

Privatization is not a new concept. For decades, hundreds of communities have obtained their drinking water and other essential governmental services from private sector owned and operated sources. More recently, a number of resource recovery plants have been built and operated on a "turnkey" basis by the private sector to recover energy and recyclable materials from municipal solid waste. There has been privatization of hospital construction and

operation, and more recently there has been interest in use of this alternate financing approach for constructing and operating prisons. In the last few years, however, several events occurred which have stimulated both public sector and private sector interest in the topic. First, there has been an historic rise in tax-exempt municipal bond interest rates. In January 1982, the rates reached 12.84 percent. Since then, interest rates in general declined but those for municipal bonds remain high. This will undoubtedly cause financial hardships for communities desiring to use the municipal bond market as their predominate source of finance for infrastructure projects. In 1970, 21 percent of all municipal debt service was dedicated to interest repayment whereas by 1981 this figure reached 33 percent. As a result, there will be delays in construction of these projects.

The GAO performed a review of the situation for the House Subcommittee on Economic Stabilization, Committee on Banking, Finance and Urban Affairs and found that there has been a surge in demand for loanable funds and a decrease in the supply of loanable funds. In the past four years, the annual volume of long-term municipal bonds has risen from $43.3 billion in 1979 to $77.3 billion in 1982. GAO reports that the most important factor contributing to this increase has been the rapid growth in the use of tax-exempt bonds for non-traditional purposes:

> "In 1970, over 95 percent of the $18.1 billion in municipal bond issues was used to finance traditional public infrastructure. [Traditional infrastructure on this context refers to structures and equipment owned by states and localities and includes highways, bridges, buildings, mass transit systems, and public utilities such as water, sewer, or power systems.] By 1982, such use dropped to only 48 percent of new issues. In the past decade, the tax-exempt market was increasingly used to finance non-traditional endeavors, such as multiple and single-family housing, industrial development, private hospitals, acquisition of pollution control equipment by private industry, and student loans. In 1982, an estimated $43.4 billion in new bonds were sold to finance these activities."[12]

Another important change occurred with enactment of the Economic Recovery Tax Act of 1981[13] which, among other things, liberalized the investment tax credit and accelerated depreciation schedules.

Privatization holds many attractions for the private and public sectors alike. There are substantial cost savings and programmatic efficiencies which can be realized if the proper financing methods and overall transactional structure are employed. However, privatization is by its very nature complex involving numerous parties and unique relationships. It is expensive and time

consuming for all parties concerned to participate in the conception or execution of a privatization project.

Typically, the parties to a privatization project include the owner or owners who will take either a passive or active equity position in the matter, the operator of the facility, the engineer who plans and designs the facility, the builder who constructs the facility, the municipality which can lease the site to the owner and receives the services derived from the facility, an issuer of any tax-exempt debt, and an investment banker which raises the equity and underwrites the debt. Many of these parties will need legal, tax, and financial forecasting services. Finally, there are insurance, public utility commission, and environmental considerations.

One of the drawing forces that attracts private sector interest in privatization is tax savings. By cooperating with each other, both the public sector and private sector can benefit through use of industrial development bonds, accelerated depreciation, and the investment tax credit. Industrial development bonds are typically issued through a special purpose state or local agency to encourage private capital development. The debt is retired through lease or mortgage proceeds paid by the private developers. Because the bonds are tax-exempt, the interest rates are lower than conventional instruments which translates to lower mortgages for the private sector. The public sector benefits from the construction of the project with its public works type purpose, increased economic activity, and a broadened tax base. Industrial development bonds are commonly used to finance wastewater or water treatment plants, and solid waste facilities.

The tax code now permits accelerated depreciation of a facility over a 15 year period and for qualified equipment over a period of either 3 or 5 years. Moreover, an investment tax credit of 10% of an item's cost is available for replacement or expansion of equipment owned and used by the private sector. The tax credits are applied directly to corporate taxes due, thus reducing dollar for dollar the taxes that would otherwise be owed. Under sections 46 and 48 of the Internal Revenue Code, taxpayers can claim the regular investment tax credits for qualified investments in recovery property and other kinds of depreciable property defined in section 38 of the Code. The amount of the credit varies according to the nature of the property. It is 10 percent for 5, 10, and 15 year property which includes most equipment and the building of a wastewater treatment works. The maximum amount of the credit is limited to $25,000 of the taxpayer's tax liability plus 85 percent of the tax liability in excess of $25,000. If the taxpayer cannot use the credit because of tax liability limits, then the tax credit may be carried back to the preceding years or carried forward for up to 15 years.[15]

Not every privatization transaction can be structured to capture

the benefits of all three of these mechanisms. Some of the possible transactions are:

1) A "sale/leaseback in which the municipality itself or by contract designs and constructs the facility in question. The municipality then sells the facility to a private sector concern which leases its use back to the municipality. The private owner or owners are able to receive the benefits of accelerated depreciation. The public sector operates the facility. No investment credit is available in the transaction because the property is not section 38 property.

2) A sale of a facility constructed under public auspices with an ensuing service contract under which the private owners also operate the facility. This not only entitles the private sector to accelerated depreciation but also the investment tax credit.

3) A "turnkey" operation in which any combination of private sector parties design, finance, construct, operate and maintain the facility. The public sector may enter into a long-term lease for the site and build in other protections. The private sector obtains the benefits of accelerated depreciation and the investment tax credit by using a service contract similar to the one described in number 2 above. Under this arrangement, the owners can be either passive or active. For example, the owners could contract with a third party to operate the facility.

4) Split ownership where all facility construction is funded at once under a public offering. The municipality then loans a portion of the proceeds to the private sector. The publicly owned facilities can later be sold or leased. Under this transaction, the municipality may retain ownership over certain portions of the facilities which are considered vital to its interests while providing private sector opportunities for other less sensitive portions.

5) Tax-Exempt-Lease-Purchase Agreements where the municipality through a non profit authority issues bonds to construct and own a treatment works and sell it to the municipality under an installment contract (lease-purchase) agreement. The municipality does not incur debt under this transaction but makes payments to the non profit

authority which, in turn, makes bond payments. The municipality has operation responsibility for the facility and obtains title to the facility by the end of the term of the installment contract. The bondholders receive tax free revenue for payments in excess of their investment. While there is no investment credit or accelerated depreciation available, municipalities which possess facilities that have been constructed using federal grant funds may find this transaction particularly attractive.

6) Tax-Exempt Leverage Leasing with a private third party lessor which builds and owns the facility. This third party lessor leases the facility to an operator lessee which, in turn, has a service contract with the municipality for cleaning the wastewater. The payments to the operator include cost for operation, maintenance, replacement, taxes, and profit. This transaction differs from transaction number 3 only in that the municipality looks to the lessee, rather than the owner, for services.

Some of the above described transactions may be affected by proposed federal legislation which will adversely amend the manner in which depreciation deductions are taken for property leased to governmental entities.

Typically, the lessor in transaction number 6 as owner will provide at least 20 percent equity and, in accordance with Section 46(e)(3) of the Internal Revenue Code, will most likely be a corporation. It receives investment tax credits on the full purchase price of qualified equipment and accelerated depreciation on the qualified equipment and facilities even though amounts above its equity investment come from the sale of tax-exempt bonds issued by an industrial development authority. The authority sells bonds and enters into a loan agreement with the lessor which is given all operating rights and tax benefits.

In structuring any transaction, care must be taken to remain within various tax limitations of the Internal Revenue Code. For instance, in order to ensure that the private owner can obtain the benefits of the investment tax credit, the municipality must be the one to assess rates and collect the user charges or taxes for the facility. The private owners charge the municipality a fee for providing the service involved. Another rule is that to the extent individuals are investors seeking the investment tax credit and, in the case of resource recovery or hydro-electric facilities, business energy tax credits, they must have a minimum of twenty percent "at risk" investment in the facility. This rule affects the extent to

which the investors can resort to the use of non-recourse borrowings in order to capture these tax benefits.

Under these financing alternatives, the municipality typically would first issue tax-exempt revenue bonds to fund the debt portion of the financing. The owner, if private, would invest equity to fund the non-debt portion of the financing and, in turn, would receive the benefits of the investment tax credits and accelerated capital depreciation. The funds raised by the municipal bond issue would be made available to the owner through an appropriate legal instrument such as a financing lease or installment sales agreement which would enable the owner to receive the tax benefits. The municipality should protect itself by obtaining a security interest or mortgage on the privately owned facility which, in the event of default by the owner, enables the municipality to take possession and replace the operator.

Construction and operation will typically occur under competitive advertised or negotiated contracts between the owner and the municipality or between the construction contractor and the owner, if they are separate parties, and the municipality. Key points to address in the contracts are cost limitations, bonding, insurance, environmental permitting, damages, penalties, termination, and disputes.

Revenues for debt service, operation, maintenance and replacement should be raised through user changes with the underlying understanding that the municipality is to set charges at whatever level is necessary to maintain an adequate debt service coverage ratio. A rate covenant in the financing will assure that the appropriate user charges are set.

Aside from selecting which financial transaction should be used, it is imperative that all parties with a stake in the success of the venture carefully assess its economic feasibility. To do this, it is necessary to assemble sufficient information to create an economic model to forecast future costs. This is instrumental in determining what rates must be charged to capture a sufficiently high rate of return on investment to attract investors. If these rates are out of line with what consumers will pay should the project be funded using conventional general obligation or revenue bonding, then the entire project is in economic jeopardy.

By using software designed for use on micro-computers, it is possible to consider any number of variables including projected revenues, operating, maintenance and replacement costs, inflation rates, and financing cost data. Using this and other information, one can calculate the required fees over a 20 or 30 year period and the project's net present value. This can be updated continually as new or more accurate cost information becomes available and can be used for feasibility analyses as well as for evaluating alternative approaches to financing.15/

The project evaluation should begin with the identification of the basic revenue and expense elements (sources and uses of funds) for the project. It is then necessary to develop reasonable assumptions for each of these elements in order to convert them to a dollar value. These assumptions must include labor rates, operating expenses, bond, mortgage or lease payments and revenues generated from sale of energy or other material. These assumptions should be converted to annual dollar values indicating the assumptions and calculations in order to permit careful review for possible errors in assumptions or calculations.

Once the assumptions and calcuations are accepted, a simplified cash flow model can be developed to evaluate the project's economic potential over its economic life. The net present value of the project can then be determined by subtracting the annual projected fee for providing the service through traditional public means from the annual fee for the privatization approach. Each years' savings or costs are deflated and discounted to the present year and summed. This figure provides an estimate of the current economic value of the project. If the sum is a large positive member, the project should be pursued. If it is close to zero or negative, the project's economic viability is in trouble.16/

If the project's current economic value is positive and the decision is made to go forward, it will be necessary to improve the economic model by honing the assumptions to determine how much movement within each element is permissible without jeopardizing the current economic value. Where the assumptions are not based on reliable data, additional research will be required. Throughout the ensuing stages of the project, it is imperative to review and recompute the net present value. If the value drops, the project may have to be re-evaluated.

The natural sequence of these events suggests a logical procurement strategy for the municipality. It should first select financial and tax consulting services in order to determine what types of transaction are feasible for the project in question. The municipality may also want to acquire the services of a management consulting firm to be overall project coordinator for the procurement and construction management responsibilities. It next should select, if needed, professional services to determine what user charges or rates should be assessed in order to cover all costs which may affect the economic forecast. Both of these services should be obtained using whatever form of negotiated procurement is permissible at the state or local level. Because these services can be provided by a number of different professions including accountants, attorneys, investment bankers, or engineers, use of a Brooks-Bill type of procurement would be inappropriate. This method of procurement, which ranks professionals on the basis of qualifications first and allows price negotiations with the highest ranked professional, should be limited to those services which only a professional engineer can furnish provided State law does not provide otherwise.17/

Once these services are performed, the municipality is then in a position to solicit offers from professional engineers for the design of the facility using competitive negotiation or the Brook-Bill type approach. Finally, the general construction firm can be selected using the formally advertised sealed bid procurement method. If a "turnkey" approach is used, the "turnkey" contractor should be selected using this method.

Based on the foregoing, it is clear that structuring the financial transaction and forecasting the financial prospects of a privatization project is a complex and somewhat risky affair. In order to determine whether it is to a potential private owner's economic advantage to submit a bid or offer, it should engage in a preliminary yet thorough assessment of the financing alternatives and economic projections. This can be relatively expensive and may discourage many concerns from competing in this new arena, particularly when the public sector is either unwilling or unable to consummate a privatization transaction successfully.

The recent aborted attempt of the Camden County Municipal Utilities Authority, Camden, New Jersey, (Camden) to use the privatization approach to build a new 75 MGD (million gallons/day) POTW and a 17 MGD addition and improvement to an existing plant underscores this latter point. There was strong private sector interest in the possibility of designing, constructing, operating and maintaining these facilities privately.

By summer of 1982, Camden officials realized that major portions of its county-wide collection and treatment system could not be funded in the near future using EPA construction grants money. For the two facilities in question, Camden engaged a consultant which estimated that construction savings alone might approach 20% of the estimated project cost were it constructed using EPA funding. Much of these estimated savings were premised on the supposition that the private sector, not being subject to the EPA procurement under grant regulations,[18] can design and construct the facility in half the time it would take under the construction grants program and without need to abide by public procurement requirements including prohibitions against use of multiple prime contractors, use of unduly restrictive specifications, and payment of wages inconsistent with those mandated by Clean Water Act.[19]

By coupling these construction savings with the favorable changes in the Internal Revenue Code discussed above concerning the investment tax credit, accelerated depreciation, deductibility of interest expenses, and possible application of the energy tax credit, privatization, at first blush, looked viable. Encouraged by this preliminary review, Camden publicized a request for qualifications in the Engineering News Record and received nineteen responses.

Camden established a selection committee for the purpose of evaluating qualifications with the expectation of using a

Brooks-Bill type approach where negotiations would occur with the most qualified firm or joint-venture and then to negotiate terms including price. While it never became an issue, use of this type of procurement method is questionable because it is inherently non-competitive particularly as applied to price. A more appropriate approach would involve use of competitive negotiation.

Camden at this point chose to retain a second consultant to coordinate the overall process including completing the request for proposals and to work with bond counsel, financial consultants, legal counsel, and other consultants.

The new consultant promptly raised a series of issues not previously surfaced which have effectively stopped the procurement from going forward. First, local laws which governed Camden's activities prohibit it from entering into any service contract for a period in excess of three years. Second, serious questions were raised about the manner in which Camden intended to conduct the procurements including the legality of the intended negotiated procurement method under state law and the pre-qualification procedures. Third, there was concern that Camden, being a regional authority, had to obtain approval from its client communities because the funding was not to be derived from traditional grant sources. Fourth, questions were raised in examining the profitability or feasibility of privatization that labor and material costs might be subject to the state's sales tax considered. Further questions also focused on whether the property upon which the facilities were to be constructed was subject to local property taxes if built under public ownership and then sold to the private sector, or whether Camden would jeopardize its tax exemption if the property was leased to a profit-making private sector concern. Fifth, it was felt that it may be necessary to seek legislative clarification that the "privatized" facilities would not be subject to utility taxes on the rate setting authority of the State Public Utility Commission. Sixth, there was concern that proposed federal tax legislation would jeopardize the tax incentives which make privatization attractive.[20]

Obviously, there was disappointment on all sides that so many obstacles cropped up to prevent further procurement action. It was not only frustrating but also expensive for those firms which participated in the response to the solicitation. Most if not all had conducted a cash flow analysis and considered both tax and financial approaches. While each that did so gained expertise fromthe exercise, the public sector must be careful not to solicit responses from the private marketplace unless it first knows enough about the cash flow, tax, financial, and legal issues to permit aggressive pursuit of privatization.

Aside from the potential obstacles surfaced in the Camden matter, those considering privatization must address the question of who has ultimate responsibility for the effluent and compliance with

the NPDES permit. If total responsibility is kept in the private sector, the public sector must be given certain assurances and rights to intervene when there is substantial noncompliance. The public sector will want the private sector operator to be insured in the event of noncompliance in order to give teeth to performance assurances which should be in the agreement between the operator and the public authority. The insurance should also address the potential liability for public health damage which may arise from noncompliance. The public sector would also want to be aware of the limitations which may be imposed on their ability to expand capacity when choosing among the various financial alternatives.

Finally, the private sector must be able to secure a promise from the public sector that it will be able, either by itself or through the municipality, to obtain sufficient rate increases to cover increased operating expenses which occur without the fault or beyond the control of the operator. From the public sector's perspective, the agreement between the public and private sector must clearly state under what circumstances resale of the system may occur, when subcontracting is permitted, and when, if ever, title will vest in the public sector.

As the Congress settles down to exploring ways to strengthen the Clean Water Act and EPA's water enforcement abilities, it should seriously examine how to assist the states and the private sector in their efforts to find ways to finance POTW construction outside the channels of traditional grant funding. Current tax laws could be amended or clarified to give all parties clear rules by which to structure a privatization transaction. Congress may also want to clarify whether it wants to permit the disposition of a POTW financed using EPA construction grants to a private concern without requiring reimbursement of the federal grant. Most importantly, Congress must consider whether it wants aggressive enforcement against violators of NPDES permits. If it does, then it should consider providing the means, either directly or indirectly, to make this possible.

Footnotes

* Mr. Sorett was assisted, in part, by Linda Clark and Glenn Mackles of Touche Ross & Co., in preparation of this article. Mr. Sorett is a Manager in Government Contracts Services for the Touche Ross Washington Service Center. Prior to joining Touche Ross, he was the senior attorney at the U.S. Environmental Protection Agency responsible for all procurement under the construction grants program. He is currently Chairman of the Federal Bar Association's Federal Grants Committee.

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Economic Analysis and Financing of Resource Recovery Projects

A Guide for Public Officials

BY DALE A. SCOTT AND GARY BRAYTON

Local officials need to keep on top of the costs of planning, building, and operating resource recovery facilities as the projects develop. Continual reassessment of the financial picture is necessary, as is care in choosing the original financing method.

The key to the financing of any project is economic feasibility. In the case of a resource recovery project, whose main purpose is waste disposal, economic feasibility must flow from future avoided costs versus alternative disposal methods. As a result, the economic analysis of resource recovery projects relies on the forecasting of future costs, a process often described as "predicting the future with a rear view mirror." Furthermore, numerous methods of financing resource recovery facilities are available and the method selected can greatly affect the economic feasibility of a project.

In mid-1982, the California Pollution Control Financing Authority and the California Waste Management Board contracted with Touche Ross and Co. to write a handbook providing local public officials with an overview of the process of financing resource recovery projects. Because existing methods for evaluating these projects appeared flawed, the scope of the project was expanded to include a process of project planning and evaluation as well as a discussion of financing methods. The backbone of this process is one of continuing economic analysis which is referred to as the "concept of creeping financial commitment." This concept guides the decision-maker in the spending of additional development funds.

To assist with this process, a computer financial evaluation program, RRAM (Resource Recovery Analysis Model), was developed for microcomputer application. RRAM allows for over 100 variables, including projected revenues, operating costs, inflation rates, and financing cost data. Using such information, the program calculates the required tipping fees over a twenty year period and the project's net present value. It is designed to be continually updated as new cost information becomes available and can be used for feasibility analysis as well as evaluating alternative approaches to financing.

In order to provide for a comparative analysis of financing methods, a case model was developed representative of a typical resource recovery project. The case model and a survey questionnaire were distributed to members of the financial community. The results of the survey were used to identify the primary methods and costs of resource recovery project financing.

(continued on page 94)

TABLE I

SUMMARY COMPARISON OF ALTERNATE FINANCING METHODS (Construction cost = $46 million)	Financing Alternatives				
	Public Ownership			Private Ownership	
	General Obligation Bond	Revenue Bond	Lease-Revenue Bond	Tax-Exempt Bond W/Equity	Taxable Debt W/Equity
Financial Requirements (Input)					
• Bond Interest Rate (%)	10.0%	11.0%	10.5%	11.0%	13.5%
• Debt Service Coverage Factor	1.00	1.50	1.00	1.25	1.35
• Debt Service Reserve Fund?	NO	YES	NO	YES	YES
• Equity ($000's)	0	0	0	$13,800	$13,800
Results (Output)					
• Total Debt Required ($000)	$55,040	$66,746	$65,513	$47,093	$59,597
• First Year Tip Fee ($/Ton)	$19.22	$39.56	$21.96	$22.42	$36.46
• Net Present Value ($000)	$21,727	$(14,935)	$17,509	$13,679	$(3,605)
Other Factors					
• Risk Level to the Community	HIGH	MEDIUM	MED/HIGH	LOW	LOW
• Complexity of Obtaining Financing	LOW	MEDIUM	MED/HIGH	HIGH	HIGH

(continued from page 44)

Laying the groundwork: preparing for project financing

Financing a resource recovery project is a complex undertaking requiring a significant commitment of a community's management resources. Significant expenditures are required to develop the project prior to financing. Because of these high expenditures, our recommended approach in developing a resource recovery project is one of "creeping financial commitment," which consists of applying ongoing economic analysis to determine projected economic feasibility as additional development funds are spent. This process, outlined below, provides the project manager with an understanding of the economic considerations which ultimately determine financial feasibility.

Step 1—Identify the community's project objectives. A clear statement of objectives should be prepared based on the community's perceived needs.

Step 2—Conduct a preliminary feasibility study. A cash flow analysis should be prepared based on typical capital and operating cost estimates as well as energy revenue projections to determine the tipping fee over the project life. This amount should be compared with projections of landfill tipping fees to estimate the avoided costs.

Step 3—Establish a project team. Given a favorable preliminary feasibility study, a project team should be established. Such a team should include a project manager with overall responsibility for the management of the project; a financial analyst responsible for updating and refining the economic model; an independent financing advisor with knowledge of the capital markets; and a technical consultant responsible for the technological aspects of the project.

Step 4—Initiate project planning. A project workplan should be established detailing the project tasks and timetable necessary to develop final project financing. Critical to the project planning is the preparation of a sophisticated economic model such as RRAM to assess the project's cash flows, avoided costs versus landfilling and net present value. This model should be continuously updated as improved data is available.

Step 5—Select a technology. This process consists of selecting a technology vendor. Performance and price/value information must be considered. A vendor's demonstrated experience and financial capabilities should be carefully reviewed.

Step 6—Select the method of financing and the financing manager. Various methods of financing should be considered. The proposed methods of financing should be tested in the economic model to compare their relative costs.

Step 7—Develop financing requirements and obtain final financing. Given financial feasibility, financing requirements such as energy sales contracts, service agreements, landfill contracts, and permits should be developed. Once in place, the final financing process can begin.

Project evaluation

The foundation of a successful project financing is a project which has both technological and economic feasibility. The basic merits of the project will determine whether the project can be financed at all. The following steps are recommended in the evaluation process.

Step 1—Identify the elements of the cashflow model. This consists of identifying the basic elements of revenue and expense or the sources and uses of funds in the project.

Step 2—Develop assumptions regarding each of the project's cashflow elements. Assumptions must be developed to convert each of the cashflow elements to a dollar value. These assumptions will range from energy output and selling price to operating plant staffing and labor rates.

Step 3—Calculate the annual dollar value of each cashflow element. The assumptions should be converted to annual dollar values indicating the required calculations. This provides all project participants the opportunity to review the details and identify the assumptions as well as potential errors in the calculations.

Step 4—Develop a preliminary cashflow model. This cashflow model should extend over the economic life of the project, typically twenty to thirty years.

Step 5—Determine the net present value of the project. The net present value of the project can be determined by subtracting the annual projected tipping fee of continued landfilling from the annual tipping fee of resource recovery. Each years' savings or costs are deflated and discounted to the present (year 0) and summed. This figure provides an estimate of the current economic value of the project. If the sum is a large positive number, the project should be pursued. If it is close to zero or negative, additional evaluation should be undertaken, and the project potentially discontinued.

Step 6—Develop a more sophisticated economic model. If the project is to be pursued, an improved economic model will be required to assess the nuances of changing assumptions.

Step 7—Run economic sensitivity analyses. The project analyst should now determine what factors are critical to the economic feasibility. This can be accomplished by testing a low and a high value, within the range of reason, for each of the project's cashflow elements. The effect of these changes on the project's "bottom line" or net present value can then be identified. Through this process, specific assumptions can then be highlighted as "critical" to economic feasibility, and additional research performed to firm up the reliability of these assumptions.

Step 8—Continuously update the economic model using the "most-likely" assumptions. The net present value should be recomputed and reviewed on a regular basis. A lack of economic feasibility should serve as a "red flag" to reduce project development spending and, if indicated, cease additional work. Project team members should be aware of these results and work closely with the financial analyst to maintain the most currently accurate assumptions possible.

A community can reduce its risk of failure and assure final project financing by developing a sound economic model driven by fact-based assumptions. Other requirements for financing can then be developed while maintaining a current economic justification. This approach can result in an enlightened project team with an understanding of project economics which will ultimately eliminate surprises during the final financing process.

Methods of financing

Financing schemes for resource recovery projects fall into five primary methods:

Public Financing. There are three primary methods of public financing available for resource recovery projects.

General obligation bonds use the full-faith-and-credit of the community as security for the debt. The cost of debt or interest rate is consistent with a community's credit rating. It is the simplest form of financing and often the most cost-effective. However, it does result in all of the project risk being assumed by the community. (Note: This method was used in developing our base case. It was not recommended by any of the financial institutions surveyed.)

Revenue bonds pledge the revenues of the project as security for the debt. The cost of the debt will typically be higher than a general obligation bond. However, as a result of the higher risk to the bondholders, additional security measures and guarantees may be required to secure the debt. These measures typically increase the amount of funds borrowed and borrowing costs.

Lease revenue bond financing is a variation of revenue bond financing. With this method, a public entity issues tax-exempt bonds. The facility is then leased to another public entity. Security for the bonds is provided by the lease between the entities in which the rental payments must equal the principal and interest payment on the bonds. This structure has the advantage in that financing costs and requirements tend to be lower than with revenue bonds.

Private Financing. Under private ownership options, a private sector entity assumes the ultimate control and responsibility for the facility. While this approach shifts most of the risks to the private sector, it also shifts potential rewards. Although the public entity is no longer the owner, it can maintain a significant amount of control through contractual agreements known as full-service contracts. Such contracts consist of a vendor's commitment to build, operate and maintain the facility based on the terms of the agreements. Financing a privately-owned resource recovery facility involves the issuance of debt and, generally, the investment of private-sector equity. The debt can be conventional or tax-exempt in which case it must be issued by a public entity. The equity may come from the vendor/operator or a passive third party investor. This gives rise to the two primary forms of private financing: vendor/operator equity and the leverage lease.

Under vendor/operator equity investment, the vendor/operator provides an equity investment in the project based on the available tax benefits. This amount is typically between 20 percent and 35 percent of the project cost. The balance of the funds are provided through the issuance of tax-exempt bonds or through institutional loans. The tax-benefits are a source of revenue to the owner which therefore reduce the required debt and early-year tipping fees. Its drawback is the difficulty in locating such a vendor/operator and the complexity of structuring the financing.

Leveraged lease financing passes the tax-benefits to third-party passive investors based on their equity investment. The owner/lessors then lease the facility to a user/operator who provides service based on operating agreements. This type of structure is very similar to the vendor/operator method of financing. Its major advantage is that it provides for a broader pool of potential investors.

The impact of the financing method

The selection of a method of financing should be based on risk/reward considerations from the point of view of the ratepayer. The community needs to ask itself three questions in evaluating financing options:

- Which financing method produces the lowest tipping fee to the users resulting in the greatest net present value?
- What are the risks or potential liabilities associated with each financing option?
- What are the rewards or potential gains associated with each financing option?

These questions were analyzed based on a survey conducted in October of 1982 of interested investment banks, commercial banks, leasing agents and municipal financing consultants. The survey requested financing details for a hypothetical 600 ton-per-day mass-burn facility producing electricity. The facility represented a landfilling alternative to a hypothetical community with current landfilling costs of $12.00/ton.

The purpose in presenting the results of these analyses is not to identify the lowest cost or most attractive method of financing. Rather, it is to provide an overall framework for performing the quantitative evaluation of financing methods.

The results shown in Table 1 are based on changing the financing requirements only. All other assumptions remain the same. The specific requirements which do change are:

Bond Interest Rate. This rate varied from 10.0 percent to 13.5 percent based on the financing alternative.

Debt Service Coverage Factor. This factor varied from 1.00 to 1.50, depending on the financing method.

Debt Service Reserve Fund. The need for and amount of this fund varied with the financing method. Where required, such a fund was equal to a full year of principal and interest.

Equity Contribution. There is no equity contribution in public ownership financings. For the two private ownership financing alternatives, 30 percent equity was assumed.

The output obtained from changing the above variables is listed under the heading "Results" in Exhibit 1. These are:

Total Debt Required. This represents the entire amount of funds which must be borrowed under each method to finance the construction of the hypothetical $46 million facility.

First Year Tip Fee. This is the dollar per ton amount (in year 0 dollars) that users of the facility will be required to pay.

Net Present Value. In this analysis, the net present value measures what building a resource recovery facility saves the community versus continued landfilling. A significant positive value should be expected since the community assumes risk and will expend time and resources to complete the project. The effect

of changing assumptions is indicated by changes to the net present value. A community would be wise to develop a "best case" and a "worst case" set of assumptions to identify the range of the net present value.

As can be seen, the effect of the financing method can be dramatic. In terms of net present value, the methods range from $21.7 million for general obligation financing to a negative $14.9 million for revenue bonds.

In addition to these financial results, communities must also keep in mind such factors as risk level to the community and complexity of obtaining financing.

An additional comment is in order regarding the concept of "debt service coverage." In our review of various projects being planned around the country, it is the element most often overlooked in project economic analysis.

In a viable cash flow, revenues must equal or exceed expenses. However, bankers are concerned with providing strong assurance to the bond holders that funds will be available to pay the required debt service. To accomplish this, the banker typically requires a margin of safety be included in the project's economic justification known as a debt service coverage factor.

Debt service coverage is the ratio of the net proceeds plus debt service divided by the debt service. It is a banking concept designed to provided for an increased level of security to the bond holders. This concept requires that the net revenues available to pay debt service exceed the required debt service payments by a factor (typically between 10 percent and 50 percent), in considering the economic justification.

If during actual project operation these additional revenues are not required, the bond covenant specifies how the surplus funds are to be used. These funds can be used in a variety of ways including supplementing existing reserve funds, establishing new funds to provide for increased security and/or being used for prepayment of bonds.

How does this requirement affect a project's economics? Virtually all project revenues and expenses except the tipping fee are determined on a technological or contractual basis and cannot be significantly altered. The effect of an extra coverage requirement will, therefore, show up as an increase in the tipping fee. Table II is a simple example for a 600 tons per day or 219,000 tons per year resource recovery facility.

As illustrated, the effect can be quite substantial with an increase of over 80 percent in the tipping fee from the 1.00 debt coverage ratio scenario to the 1.50.

This example raises the question as to how such coverage requirements are set. Unfortunately, there is no clear and easy answer. Coverage requirements are a function of the market's perception of the overall security of the issue and the financial manager's judgement. Factors that influence this perception include the type of financing structure being used, the type of security being offered, and the internal structure of the issue itself.

It is important to note, however, that in considering economic justification the excess "debt service coverage" is not rolled forward or rebated into the project. Excess debt service coverage funds should not be considered available when performing economic feasibility studies.

The concept of creeping financial commitment suggests spending development funds based on projected economic feasibility in order to avoid sunk costs without an end result. A community can reduce its risk of failure and assure final project financing by developing a sound economic model driven by fact-based assumptions. Other requirements for financing can then be developed while maintaining a current economic justification. In addition, our research has shown that the chosen financing method can significantly affect a project's net present value, and, in fact, the project's financial feasibility. Therefore, communities are well-served by "shopping" for the best financing terms and by applying sound analytical methods in quantifying the differences in financing proposals. Only then can the community be assured it has received the best value available.

VWA

Scott is vice president/assistant manager, public finance department, The Crocker Bank, San Francisco, and Brayton is senior consultant, Touche Ross and Co., San Francisco.

TABLE II
RATIO ON TIPPING FEE EFFECT OF COVERAGE

(Dollars in $000's)	Debt Coverage Factor Required 1.00	1.10	1.25	1.50
Revenue				
Power Sales (Constant)	$ 6,500	$ 6,500	$ 6,500	$ 6,500
Tipping Fee (Includes Incremental Debt Service Coverage Requirement)	3,800	4,410	5,325	6,850
Subtotal Revenues	10,300	10,910	11,825	13,350
Expenses				
O&M (Constant)	4,200	4,200	4,200	4,200
Debt Service (Constant)	6,100	6,100	6,100	6,100
Subtotal Expenses	10,300	10,300	10,300	10,300
Incremental Debt Service Coverage	$ 0	$ 610	$ 1,525	$ 3,050
$/Ton (Tipping Fee Divided by 219,000 Tons Per Year)	$17.35	$20.14	$24.32	$31.28
Incremental Required Tipping Fee Due to Debt Coverage Factor ($/Ton)	$ 0.00	$ 2.79	$ 6.97	$13.93
Percent Increase Over Base Case – 1.00 Coverage	—	16%	40%	80%

TRI-TAC

Jointly sponsored by
League of California Cities
California Association of Sanitation Agencies
California Water Pollution Control Association

Reply to: P. O. Box 4998
Whittier, CA 90607

March 30, 1984

Mr. George F. Ames
Acting Chief, Policy and
Guidance Branch (WH-595)
Office of Water Program Operations
Office of Water, EPA
401 M Street, Southwest
Washington, D. C. 20460

RECEIVED
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Dear Mr. Ames:

Tri-TAC Comments on Federal Role in
Municipal Wastewater Treatment; Study

Tri-TAC is an advisory committee which meets monthly with staff and members of the State Water Resources Control Board in California. EPA Region IX also participates in our meetings. Our members are drawn from the League of California Cities, the California Water Pollution Control Association, and the California Association of Sanitation Agencies. We have nine members and nine alternates, primarily made up of public agency managers and consulting engineers. Tri-TAC also serves as the government affairs committee for the California Water Pollution Control Association.

At its March 9, 1984 meeting, Tri-TAC President Roger Dolan appointed a subcommittee to prepare comments on the "Federal Role in Municipal Wastewater Treatment; Study" that represent the consensus opinion of its members. The following comments address the concerns of Tri-TAC members and indicate the direction in which they feel the Federal program should be headed.

The two underlying objectives of the Clean Water Act are fully supported by Tri-TAC.

- To foster long-term local self-sufficiency and capability to construct, maintain, operate and replace municipal wastewater treatment facilities, and

- To facilitate compliance by municipal wastewater treatment facilities with the requirements of the National Pollutant Discharge Elimination System (NPDES) permits.

In achieving these objectives, Tri-TAC believes that the following should be considered:

1. In order to insure equity for all municipalities throughout the nation, Tri-TAC believes that Federal assistance should be provided to those communities that have been at a lower priority and have over the years worked their way to the top of the priority list. Needs that are currently clearly identified as necessary to insure compliance with the National Pollutant Discharge Elimination System (NPDES) permit requirements should be grant funded to project completion.

2. Tri-TAC believes that capital requirements for capacity expansion beyond initial grant eligible amounts can and should be carried by new customers of the system. We believe that replacement and major maintenance costs should be carried by the present customers of the system and that sufficient funds should be accumulated in reserve accounts for this purpose.

3. Tri-TAC believes that the prerequisites for local self-sufficiency already exist in the present program in the form of required financial capability analyses and revenue program approvals. Implementation of approved revenue programs will insure the collection of adequate user charges such that all operation, maintenance, and replacement expenses will be fully met at the local level.

4. Tri-TAC believes that, in order to foster long-term local self-sufficiency for agencies that will not qualify for grants for reserve capacity (after October 1, 1984), some form of supplemental financing (Federal or state grants, loans, privatization, etc.) will be needed to provide interim capacity so that newly implemented user charge and connection fee programs will have adequate lead-time to amass necessary capital funds for constructing the next logical increment of expansion. These programs cannot provide the required revenue instantaneously.

5. Tri-TAC believes that individual households in general have the ability to pay for ongoing wastewater treatment as it is presently defined; however, the environmental goals of the future will be different from the secondary

treatment goals we are currently striving to meet. Control of toxics and control of more subtle environmental effects can be expected as developing analytical techniques disclose more information about our environment. Upgrading facilities in response to higher environmental standards could be extremely costly and very difficult to implement using local financing alone. Tri-TAC, therefore, supports the continuation of Federal assistance in the financing of facilities required for upgrading treatment levels.

6. New capital financing delivery systems for small, medium and large agencies should be evaluated and compared in terms of minimization of administrative costs, complexity of using the system, length of time required in securing funding, and appropriateness of the delivery system to the specific need being financed. Tri-TAC is not committed to grant funding as the only method by which state and Federal governments might fund local agencies. From the local agencies' standpoint, the economics of low interest loans on 90 to 100 percent of a project's cost can compare favorably with grants at a 50 percent or lower basis.

7. Tri-TAC does not believe that it is necessary for future Federal financing to be managed by the U. S. Environmental Protection Agency. The states could play the major role in managing the financing in conjunction with either EPA or some other Federal agency. Benefits of local control, elimination of duplication of effort, and the resulting cost savings could be achieved.

8. The impact of the municipal compliance strategy has not been realized to date and will not be realized until mid 1985 when effluent limitations and compliance schedules for POTWs will be finalized. Tri-TAC believes that a common sense approach to enforcement to meet the July 1988 deadline must be used. To fine a municipality for not proceeding due to financial difficulty only exacerbates the problem and could eventually weaken EPA's enforcement actions nationwide. Additionally, thought should be given to extending the compliance deadline.

9. Tri-TAC recognizes that correction of combined sewer overflows (CSOs) is a major problem facing agencies across the nation. The 1981 Amendments authorized $200 million per year to be set aside to correct CSO problems in bays and estuaries. Only $60 million has been appropriated over the last two years. This level of funding is not sufficient to solve all the CSO problems; therefore, Tri-TAC recommends that this level of funding be increased or that a separate source of funding be developed specifically to correct this problem.

10. For years agencies have lobbied for consistency in the Federal program in terms of reliable, uniform and long-term commitments upon which they could determine without reservation or uncertainty what is expected of them. Tri-TAC believes that, if changes to the Federal program are going to be made, they should be made in a way which insures program consistency in the future.

We thank you for this opportunity to provide input and look forward to commenting on your draft report.

Yours very truly,

Charles W. Carry

Charles W. Carry
Subcommittee Chairman

CWC:JCG:cam

cc: Mr. Roger Dolan, President, Tri-TAC
Mr. Robert F. Bradford, Subcommittee Member
Mr. Michael Zambory, Subcommittee Member

CONSTRUCTION GRANTS - 1984 WORKSHOPS

PROGRAM DIRECTION: IMPROVED WATER QUALITY

LOCAL VIEWPOINT ON CONSTRUCTION GRANTS

Roger J. Dolan

Chairman, Tri-TAC

May 21, 1984

The Clean Water Act of 1972, Public Law No. 92500, was a landmark piece of legislation which has already had and will continue to have substantial positive effects on the nation's waters. Today I am representing the local viewpoint on the Construction Grants Program. The theme of today's workshop has an interesting subtitle--Improved Water Quality. Before I get done, I'm also going to make a comment or two on the subject of water quality, aside from the Construction Grants Program. As was mentioned in the introduction, I am the chairman of Tri-TAC. Tri-TAC is made up of three delegates and three alternates each from the California Association of Sanitation Agencies, the California Water Pollution Control Association, and the League of California Cities. These 18 people meet monthly in Sacramento and discuss issues related to the operation of water pollution control facilities. The principal focus of Tri-TAC's attention in the ten years that it has existed, has been to offer advice to the staff and members of the State Water Resources Control Board on developing State regulations pursuant to the Construction Grants Program in Public Law No. 92500.

My comments today are drawn from the positions that Tri-TAC has taken on pertinent issues in the Clean Water Grants Program. Let me emphasize at the begining that the Clean Water Grants Program has been a success. Throughout the State of California, water pollution control facilities are in place and operating, and in the final stages of construction which wouldn't have existed without the Grants Program. The decision to fund local agencies to encourage their construction of the facilities needed to ensure fishable, swimmable waters was a good one. The two underlying objectives of the Construction Grants Program are sound.

- To foster long-term, local self-sufficiency and capability to construct, maintain, operate, and replace municipal wastewater treatment facilities and;
- To facilitate compliance by municipal wastewater treatment facilities with the requirements of the National Pollutant Discharge Elimination System (NPDES) permits.

Within the Water Pollution Control Federation, few issues have raised greater controversy in recent years than the question of the continuation of the Clean Water Grants Program and the implementation of alternative financing methodologies. Tri-TAC has considered this subject in depth and offers the following position:

- There are three major categories of capital requirements facing most water pollution control facilities. These are:

  1. Capital for expansion of capacity
  2. Capital for replacement of worn out facilities, and
  3. Capital for upgrading treatment levels

We believe that growth that takes place in a service area is capable of paying for the capacity in the collection and sewage treatment plant and that systems of rates and charges should be implemented by local agencies to ensure that growth is paying its fair share. We believe that capital requirements for replacement of facilities should be borne by the present users of those facilities and that the rates and charges or tax assessments should be in place to recover an adequate amount of capital on an annual basis to meet the needs for capital replacement.

With respect to the third category--capital needs for upgraded treatment, Tri-TAC believes that these should continue to be met with the help of state and federal assistance. We believe that in order to ensure equity for municipalities throughout

the nation, federal assistance should continue to be provided to those communities who have had a lower priority and have, over the years, worked their way to the top of the priority list. As used in this context, upgraded treatment requirements would apply to the national secondary treatment definitions; also, the need for combined sewer overflow protection as well as any future requirements for BAT or toxics control and sludge disposal requirements attendant to the upgraded treatment level.

In meeting the local share of the capital needs for all water pollution contol capital requirements, local agencies are going to be faced with financing problems. It would be beneficial to the objectives of water quality improvement if the state and federal government were to provide some form of supplemental financing to enable sewerage agencies to finance the local share of capital needs in all categories.

I'd like to speak for a moment on the subject of enforcement. It is the EPA's stated intent to crack down first on grantees who are failing to meet their NPDES permit requirements. Apparently, more serious water quality violations will escape the first round of enforcement if they are committed by agencies which have stayed out of the grants program. In some isolated cases, this may put the EPA in the position of prosecuting an agency that has tried to do something while ignoring a sister agency which has deliberately done nothing. In situations such as this, the public perception is likely to be that EPA is not playing fair.

It is suggested that EPA develop a more even-handed approach to enforcement looking at areas of environmental sensitivity and mass loadings of pollutants as the top priority for their enforcement efforts. We recognize that EPA has leverage through the grants program to aid in the enforcement against grantees. However, Tri-TAC feels that that is simply an expedient and recommends that the EPA seek the enforcement authority it needs to provide enforcement on a more logical basis.

The full impact of the municipal compliance strategy has not been realized to date and will not be realized until mid 1985 when effluent limitations and compliance schedules for POTW's will be finalized. Tri-TAC believes that a common sense approach to enforcement must be used to meet the July 1988 deadline. To fine municipalities for not proceeding, due to financial difficulties, only exacerbates the problems and could eventually weaken the EPA's enforcement actions nationwide. As we understand it, the EPA believes that it will be able to separate enforcement from the Clean Water Grants Program. We do not believe that this will be possible at least with respect to the time required to meet the compliance deadlines. Grant applicants now must wait for years to rise high enough on the priority list to be eligible for a grant. Once they get there, they are then subject to substantial further delays due to requirements of the grants program.

It would seem to be extremely unfair for the EPA to prosecute a grantee who has not met his compliance schedule as a result of his being delayed by the EPA and their delegated states for years waiting for the day he can begin construction on his project. It is recommended that there are two actions the EPA should consider. First the EPA should consider extending compliance deadlines for grantees that have made good faith efforts to meet a reasonable compliance deadline, and have been unable to because of the time demands of the grants program. Second, EPA should immediately undertake steps to streamline the grants program. This brings me to the next topic I want to cover today, and that is recommendations for streamlining the grants program administration.

When the grants program began, strong centralized control and decision making was essential. Now, however, after many years of development and refinement, it is timely to consider the advantages of more completely delegating authority to the states. The key missing element in delegation is the delegation of final determination authority.

One basic managerial tenet is that responsibility-authority and accountability must go hand in hand. The larger the organization, the more layers of authority exist, and the more attention needs to be paid to the pattern of sound delegation. One might presume that in as mature a program as the grants program, delegation of authority-responsibility and accountability would have all been worked out long ago. There are reasons to think this may not be the case. Some recent decisions are cause for concern.

In principle, the grants program would best be administered by a three-tier organization. The states, at the lowest tier, should be delegated the authority and responsibility for making all project level decisions with respect to the priority of spending and the eligibility of project components for grant-funded projects. They should be held accountable for the appropriate administration of this responsibility pursuant to law, EPA regulations, and guidelines. Furthermore, they should have the authority to finish what they start and, thus, be responsibile for making the final determination on audits. The states should be required to conduct their own audits and should be held accountable for the control of waste, fraud, and corruption. Audit appeals should go to the Regional Administrator who would have the last word. If the grantee dosen't like what the Regional Administrator has to say, his next step would be to go to court. The Regional Administrator would be held accountable for making decisions within the framework of delegated authority provided from EPA headquarters. The role of the Inspector General would be to investigate and evaluate the entire program and verify, on a spot audit basis that the basic tenants of the program are being followed. The office of the Inspector General would also be involved when appeals are made to the Regional Administrator. The central role of the EPA would be to set forth the general regulations and guidance and apportion the grant funds between states based on needs assessments.

Well, compared to this idealized situation, what is the real situation. The real situation is that authority, responsibility, and accountability within the grants program is extremely difficult to assess. Second guessing continues to exist at every level. Decisions which logically should be left to the state are being made at EPA headquarters, and recently, the accountability of the Regional Administrator for final determinations was completely removed in the case of audits in which over $100,000 is questioned. This action, which was taken in January of 1984, in essence gives a veto authority to the office of the Inspector General on approximately half of the audit reports generated in the State of California and probably 80% to 90% of Grant amounts. Furthermore, since the Inspector General is responsible for producing the basic audit report in which the money is questioned, he is able to control virtually any audit report he so chooses by simply questioning more than $100,000 and then invoking his veto authority thus sending an issue to the ARB. In short, in January, a substantial amount of authority switched from the program side of the EPA to the Inspector General. The Inspector General, of course, has the latitude to question or second guess the eligibility of facilities which were long ago built and paid for by the grantee. That practice continues in spite of some attempts by the EPA to control it.

In the real situation, who is responsible for making sound determinations on eligibility of facilities? That responsibility lies with the Regional Administrator and the program side that makes the commitments prior to and during the course

of construction. Who has the final authority to make those determinations? Well, it would look like now a considerable amount of that authority has gone to the office of the Inspector General. Who is accountable? I suggest that if an error is made in this process, Solomon himself would not find anyone he could hold accountable.

There are a number of examples where the state's authority has been removed by eligibility decisions made at EPA headquarters which logically should be the responsibility of the delegated states. In its advance waste treatment policy, EPA required that the final decision on eligibility of facilities over a certain sum which exceeds secondary treatment requirements would have to be made in Washington D.C. As a result of this policy, the EPA has overturned a State decision to remove effluent from Carmel Bay. It would seem that if the State of California feels that their water quality priorities are best served by funding the Carmel project, the EPA should support the state in this effort. The Vallejo decision is another example of EPA headquarters pre-empting a state funding decision. Back in the 1970's, the Sanitation and Flood Control District of Vallejo decided to build a physical chemical process which had a lower capital cost and a higher operating cost burden than the District would have to bear. If this decision were made today, it would likely be supported by the innovative and alternative technology funding. This decision was made at a time when the EPA was actively and enthusiastically promoting physical/chemical processes through their technology transfer program. In Vallejo, as elsewhere, the EPA's high hopes did not pan out and Vallejo's physical/chemical treatment process did not perform satisfactorily. Vallejo hired an engineering firm which recommended plant additions which would bring the facility into compliance and make the maximum practical use of the existing plant. The state agreed to fund these facilities and was overturned by the EPA headquarters.

Another example of the EPA adopting regulations which compromise the state's ability to administer the program is the new regulation concerning the maximum 5% increase cap of grant funds. This 5% cap ignores the fact that substantial cost increases can be suffered by a grantee as a result of changing federal and state regulation. Not only upgraded discharge requirements, but also new OSHA regulations and costly changes in air emission controls for furnace and engine exhaust systems have also been required. Another area where the 5% cap appears inconsistent with the EPA regulations is in the area of unforeseen site conditions. As a result of the construction specifications the EPA requires grantees to use, unforeseen site conditions are the subject of grant-eligible change orders. Were it not for these specifications, most grantees would have assigned that risk to the construction contractors. This is an example of the EPA making rules for the states that the states are perfectly capable of making on their own.

Well so much for the examples of our concern with the delegation process. What is the effect of these problems in EPA's management practice? First of all, waste. When people at the top level in an organization are engaged in making first level decisions, it requires staffing to be maintained at every level which is capable of passing upward the detailed information needed to make first-level decisions. Naturally that information dosen't all flow upward, and as a result, the quality of the decision diminishes the higher it gets; unless you presume that the only people in the organization capable of making the right decision are at the top. The second thing is that, in cases like this, decision making at the lower levels is paralyzed because at every level, people are afraid to make decisions because of the concern for being overturned as these items are second guessed higher in the organization. So an unmade decision will pass on upward and lower level officials escape accountability. A third problem is that the higher in the organization that the decision moves, the more broadly it needs to apply. The best state level decision gets lost

as the unmade decision passes to the region and thence to Washington. In as diverse a country as we have, and considering the history of nutrient removal in the midwestern states, the early work in water reclamation in the southwest, the combined sewer system problems that exist in the big eastern cities, and in San Francisco, and differences in contracting practices and the state laws that govern them, it is important that states have the authority and the responsibility to reach different decisions from state to state with respect to the specific application of the grants program. A fourth problem is that the lack of commitment to honoring past program decisions has caused a serious loss of faith between the public agencies responsible for the actual implementation of the objectives of the Clean Water Act and the agencies responsible for administering the grants program. And lastly, once you've got a control system so thorough and complete that there is someone checking up on everyone else (and regardless of who makes the mistake, the grantee pays the price), there is no place where the buck stops. This kind of a situation will be demoralizing for any achievement-oriented manager.

I'd like to recap the Tri-TAC recommendation for improving this situation. First, EPA should delegate the responsibility for final determinations on audits to the states. Within the broad direction from the EPA, the states should have the responsibility for making all the project level decisions and audit decisions with respect to the administration of their program. Audit appeals that go beyond the highest level of authority in the state should go to the Regional Administrator for final resolution and no further.

As a postscript to my comments on the grants program, I would like to reflect for a moment on the larger issue of water quality. While this complex administrative web has been woven in the grants program, I believe that EPA has paid too little attention to a very pressing environmental need. That is, I believe, that the EPA has understaffed and undermanaged the development of scientific knowledge on the aquatic environment. Back in 1972, we didn't know enough about the quality of the waters of our nation to implement requirements that were any more selective than a broad secondary treatment requirement. Here it is 12 years later and we still don't know nearly enough about the impact of pollutants on the aquatic environment. It is interesting to hear scientists debate the issues of whether or not sludge improves or degrades the benthic ocean environment. Unfortunately, decisions on sludge disposal on effluent discharges to esturarine environments and on industrial pre-treatment are being made on the basis of pure emotion and no one seems terribly disturbed about this. I would like to encourage the EPA to significantly increase their research budget to learn much much more about the effect of heavy metals and organic materials on the aquatic environment and to use that knowledge as the basis for future requirements for municipal and industrial wastewater discharge regulations.

Thank you very much for this opportunity to address you. It has been a pleasure to express these thoughts on behalf of the local sewerage agencies in California.

AUDITOR'S OFFICE
TRUMBULL COUNTY
160 HIGH STREET, N. W.
WARREN, OHIO 44481

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AUDITOR

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April 6, 1984

RECEIVED
FRD
APR 10 1984

Mr. George F. Ames, Acting Chief
Policy & Guidance Branch (WH-595)
Office of Water Program Operations
U. S. Environmental Propection Agency
401 M. Street S. W.
Washington, D. C. 20460

Dear Mr. Ames:

As Auditor of Trumbull County, and having worked in County Government for over 20 years, I can assure you that neither the County nor local communities could be "self-sufficient" in providing, maintaining or paying construction costs for wastewater treatment plants and facilities. Furthermore, there is already a heavy financial burden placed on local governments, and homeowners who must be assessed, to pay the current 25% share of project costs. When the Federal share is decreased to 55%, few communities will be able to afford the local 45% share.

Upon consultation with the Trumbull County Planning Commission and other local planning agencies this office recommends that the Environmental Protection Agency request re-authorization from the U. S. Congress of the current 75% funding level. Loans and smaller grants will not make local communities 'self-sufficient', just unable to meet requirements of the Clean Water Act. Since Congress has decided this country will have clean water, it should be willing to pay for it, too.

If you have any questions, or comments, please contact this office.

Respectfully,

Edward Bush
Edward Bush
Trumbull County Auditor

EB:
jc

United States Department of Agriculture
Farmers Home Administration
Washington D.C. 20250

APR 18 1984

Mr. George F. Ames
Acting Chief, Policy and Guidance Branch (WH 595)
Office of Water Program Operations
Office of Water, EPA
401 M Street SW.
Washington, D.C. 20460

APR 19 1984

Dear Mr. Ames:

This is in response to your announcement of a study of the Federal Role in Municipal Wastewater Treatment (49 FR 6009, February 16, 1984). You have invited papers from affected parties on various study elements, one of which is preliminary listing of Federal Funding Alternatives. Under this topic you identify Farmers Home Administration (FmHA) as an alternative approach. Attached for your use is a brief description of the FmHA Water and Waste Disposal Program. We are available to discuss the contents of the Attachment in further detail.

Sincerely,

Dwight O. Calhoun

DWIGHT O. CALHOUN
Assistant Administrator
Community and Business Programs

Attachment

FmHA Farmers Home Administration is an Equal Opportunity Lender. Complaints of discrimination should be sent to Secretary of Agriculture, Washington, D.C. 20250

Attachment

Farmers Home Administration
Water & Waste Disposal Program

The Department of Agriculture (USDA) is the Federal Government's lead department for support of rural development. Most USDA programs to help finance the planning and building of better rural communities are administered through the Farmers Home Administration (FmHA). One of the programs administered by FmHA is the Water and Waste Disposal loan and grant program; it represents the largest Federal source of Water and Waste Disposal loans and grants targeted towards rural needs. Through the program FmHA funds can be used to construct, repair, improve, expand or otherwise modify collection, pumping, treatment, or other waste disposal facilities in truly rural areas and towns up to 10,000 people.

Those who may receive assistance include: public bodies such as municipalities, counties, districts, authorities, or other political subdivisions of a State; organizations operated on a not-for-profit basis such as associations, cooperatives, and private corporations; and Indian tribes. In addition applicants must:

1. Be unable to obtain needed funds from other sources at reasonable rates and terms;

2. Have legal capacity to borrow and repay loans, to pledge security for loans, and to operate and maintain the facilities or services;

3. Be financially sound and able to manage the facility effectively; and

4. Have a financially sound facility based on taxes, assessments, revenues, fees or other satisfactory sources of income to pay all facility costs including operation and maintenance, and to retire the indebtedness and maintain a reserve.

Facilities must be consistent with any development plans of the State, multijurisdictional area, counties, or municipalities in which the proposed project is located. All facilities must comply with Federal, State, and local laws including those concerned with zoning regulations, health and sanitation standards, and the control of water pollution.

FmHA financial assistance can be in the form of a loan, or loan and grant combination. Grant funds may be available for up to 75 percent of eligible facility development costs. Such assistance may be made available for facilities serving the most financially needy communities to reduce user cost for eligible grant recipients to a reasonable level. Loan terms can be a maximum of 40 years; however, no repayment period will exceed any statutory limitation on the organization's borrowing authority nor the useful life of the improvement or facility to be financed. Interest rates are set quarterly and will not exceed current market yields of municipal obligations. In some cases loans may be made to lower income communities at a 5 percent interest rate or an intermediate interest rate halfway between the 5 percent rate and market interest rate.

All FmHA loans are adequately secured to protect the interest of the Government. Bonds or notes pledging taxes, assessments, or revenues may be accepted as security if they meet statutory requirements. A mortgage may also be taken on the organization's facilities when State law permits.

FmHA loans are classified as "insured"; however, the loans are a direct transaction between the applicant/borrower and the Federal Government acting through FmHA. These "insured" funds are obtained from a revolving fund called the Rural Development Insurance Fund (RDIF). FmHA maintains two other revolving insurance funds for other programs. These revolving insurance funds are nourished by the incoming flow of loan repayments plus the sale of Certificates of Beneficial Ownership (CBO's) to the Federal Financing Bank.

FmHA's current Water and Waste Disposal loan and grant program is authorized by the Consolidated Farm and Rural Development Act of 1972, Section 306 (7 USC 1926). Basic regulations covering the program can be found in 7 CFR 1942-A and 1942-H.

Through September 30, 1983, FmHA has made over 25,831 Water and Waste Disposal loans which total 8.2 billion and 12,342 grants which total $2.5 billion. The success of the loan program is demonstrated by the statistics on losses and delinquencies. Principle losses through September 30, 1983, was .00267 percent; as of January 1, 1984, 1.47 percent of FmHA borrowers were delinquent; the principle amount behind schedule was .15 percent as of January 1, 1984.

FmHA operates a nationwide system of local offices. County Offices are usually located in county seats where the rural public finds easy access to services. Each State has several District Offices serving multi-county areas. There are 46 State Offices serving every State plus Puerto Rico, Virgin Islands, Guam, American Samoa, and the Pacific Trust Territories.

STATE WATER POLLUTION CONTROL PROGRAM

FUNDING ANALYSIS

A discussion of the effects of the Federal Water Pollution Control Amendments of 1981 on the Vermont State pollution control funding program.

Prepared By:

Vermont Department of Water Resources and Environmental Engineering

March 1983

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SUMMARY

The December 1981 amendments to the Federal Clean Water Act will reduce the federal construction grants available to Vermont communities from 75% to 55% beginning on October 1, 1984 and will also reduce the items of pollution control work which will be eligible for grant funding. The normal state grant made to a community will increase from 15% to 35% in response to the federal reductions, which increase will more than double the required annual state appropriation needed to match the federal grant allotment. Past state appropriation levels of approximately 3 million will increase by 200 to 300%. The total state grant appropriation prior to the federal amendments would have been $32.35 million which amount would increase to $66 million if current state grant law continues in effect.

The annual costs paid by household users will in some cases, increase beyond reasonable limits as a result of these changes. Average annual user charges for the projects to be built within the next 10 years would have been $114 prior to passage of the amendments. Those average user costs will increase to $272 if the current state grant law remains unchanged.

STATEMENT OF PURPOSE

The purpose of this report is to provide background information to persons who must consider statutory and policy alternatives which can be implemented in response to the altered federal water pollution grant program. The report deals specifically with 2 issues.

1. What changes, if any, should be made in the municipal pollution control grant program in 10 V.S.A., Chapter 55.

2. What changes, if any, should be made in program policy with regard to the attainment of Vermont's water quality objectives.

FEDERAL LAW CHANGES & IMPACT ON STATE PROGRAM

1. The December 1981 amendments to the federal Clean Water Act will substantially reduce the amount of federal grant funds available to Vermont communities to build needed pollution abatement facilities.

2. The specific amendments a) eliminate award of Step I (preliminary planning) grants and Step II (final plans and specifications preparation) grants; b) reduce the federal share from 75% to 55% after October 1, 1984; c) eliminate reserve capacity of treatment plants and sewers as a grant eligible cost; d) eliminate construction of collection sewers as a grant eligible cost except that the Governor of a state may set aside up to 20% of the annual allotment for collection sewer grants of 55%.

3. The authorized federal appropriation for construction grant funding was reduced from $5 billion annually to $2.4 billion annually.

4. Vermont's annual allotment of federal construction grant funds will decrease from recent levels of $15-17 million to $12 million annually.

5. Beginning in federal fiscal year 1985 (October 1, 1984), only secondary and justified advanced waste treatment plants, interceptors, infiltration/inflow correction and collection sewers (assuming the Governor's discretionary set aside) will be grant eligible costs.

6. The current structure of Vermont's construction grant statute, 10 V.S.A., Chapter 55, would operate to increase the State grant from 15% (matching a 75% federal grant) to 35% (matching a 55% federal grant).

7. The increased state matching requirements will increase the need for an annual State capital appropriation for grants, from a representative historic level of $3 million annually to the range of $6 to $9 million annually. This is a 200 to 300% increase, and represents a substantial fraction of the overall State capital budget.

STATE GRANT PROGRAM CHANGES CONSIDERED

Alternative A - No change in current State program. Appropriate sufficient State grant funds to match anticipated federal grant allotments. This alternative will result in an increase in the State water pollution capital appropriation. Prior to passage of the 1981 amendments, the

projects listed on the 10 Year Capital Plan would have required state grants totalling $32.35 million. The 1981 amendments would increase the state grant requirement to $66 million if the state grant law remains unchanged. See Graph 1.

Alternative B - Same as Alternative A except limit State grant appropriations to $3,000,000 annually, and release unmatched federal grant allotments to the highest priority project wishing to use them and voting the requisite 45% local share. This would result in no increase in State appropriations but would mean the probable loss of some federal funds, and increased local costs for those projects using only federal funds. It would also greatly slow the rate of pollution abatement in the State. The rate of construction would drop from the current $16 million per year to approximately $8.5 million per year.

Alternative C - Reduce the State grant to a maximum of 25%, and eliminate the ceiling grant. This alternative will maintain the rate of pollution abatement progress but will result in an increase in the local share of the project.

Alternative D - Reduce the State grant to a maximum of 25%, eliminate the ceiling grant, phase projects with unacceptably high user costs, and following Department examination of a project with imprecisely defined pollution problems, delete it from the list of project NEEDS. The Department would use current permit authority under 10 V.S.A., Chapter 47, to order the necessary individual pollution abatement steps, or to order the implementation of a phased program for attaining water quality standards. The impacts of this alternative will be about the same as

Alternative C, except for the additional evaluation effort on high user cost projects and projects with currently imprecisely defined pollution problems.

Chart A provides a synoptic overview of the impacts of these alternatives.

CONCLUSIONS

1. The State should adopt Alternative D which revises the State water pollution control grant to a maximum of 25% and eliminates the current ceiling grant. This will require an appropriation of $46.7 million over the next 10 years compared to the present 10 Year Capital Plan requirement of $66.0 million. Absent the 1981 amendments, the same projects would have required a state grant of $32.35 million. The rate of pollution abatement will not be significantly altered by this action. The local costs of projects will increase but as discussed in this report, the individual user cost for most projects on the 10 Year Capital Plan will not be excessive.

2. The Department should undertake an orderly program of re-evaluating high user costs for small town projects to determine first if pollution abatement can be achieved by individual treatment and secondly, if not by individual systems, then by a phased program which eliminates health hazards and

sharply reduces pollution at reasonable user cost levels as a first phase, holding full attainment of water quality standards for later phases when they become economically achievable.

3. The Department should begin a re-evaluation of projects with excessively high annual user costs and projects with imprecisely defined pollution problems to determine if a central collection and treatment system is necessary to meet water quality standards. Where central treatment and collection systems are needed, but where user costs are too high, the Department should implement a program allowing for phased attainment of water quality standards in economically attainable steps.

GRAPH I

POLLUTION CONTROL GRANT APPROPRIATIONS

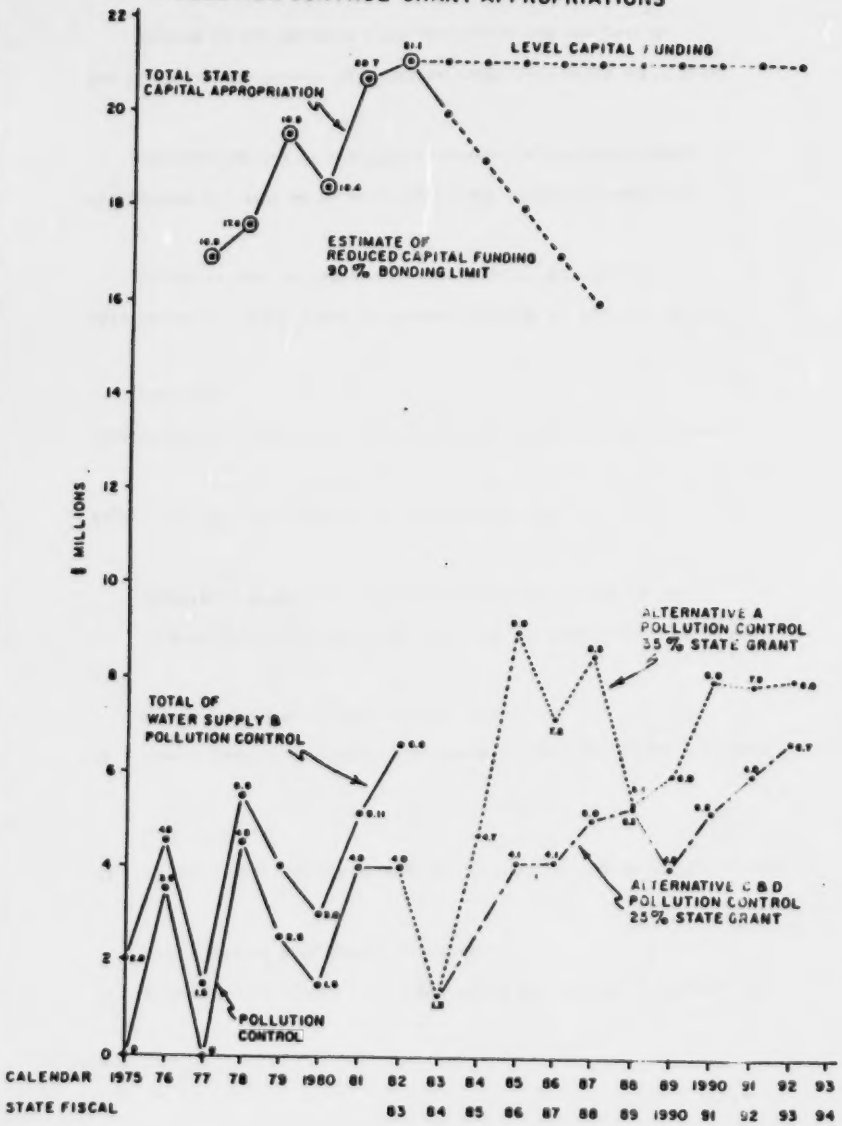
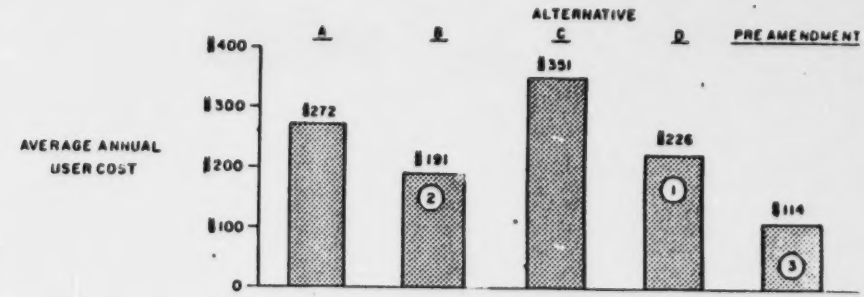


CHART A

COMPARISON OF THE IMPACTS OF ALTERNATIVES



ANNUAL USER COST	A	B	C	D	PRE AMENDMENT
OVER $400	11	4	14	14	0
$300-399	4	2	3	3	0
$200-299	2	2	1	1	1
$100-199	12	9	13	13	23
$0-99	12	9	10	10	17
TOTAL NUMBER OF PROJECTS	41	26	41	41	41

NUMBER OF PROJECTS ON 10 YEAR PLAN IN EACH USER COST GROUP

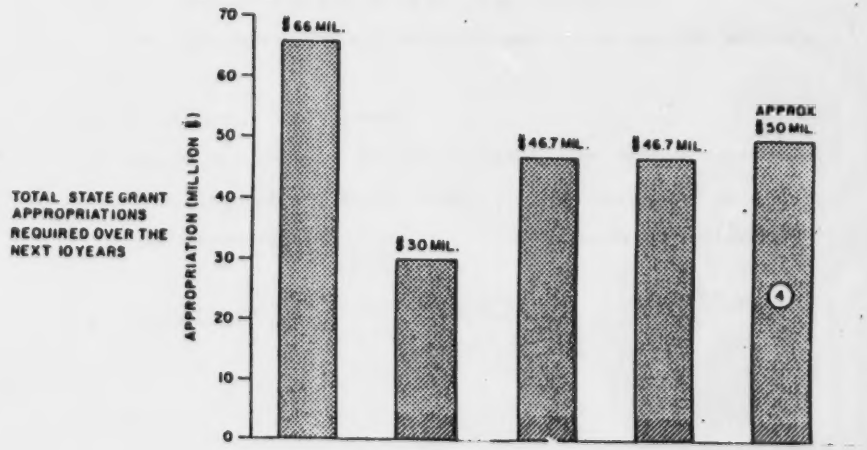


Chart A continued.

1) Assumes all projects with user costs are phased or reduced to user costs of $300/family unit/year.

2) Presumes only the projects shown on Table 10 are built during the next 10 years.

3) Twenty (20) of 41 projects received ceiling grants to stabilize annual user costs at $150/family unit/year.

4) This estimate is drawn from the 1981 10 Year Capital Plan and assuming a $5 million appropriation for FY 92 and FY 93.

Alternative A - No change in the state grant law.

Alternative B - State grant appropriations limited to $3 million annually.

Alternative C - State grant percentage reduced to 25% with annual appropriations sufficient to meet federal allotments.

Alternative D - Same as C, plus Department evaluates high cost projects for use of individual systems or project phasing.

Pre Amendment Condition - Illustrates conditions which would have existed if the December 1981 amendments had not passed.

I. Statement of Purpose

The purpose of this report is to provide background information regarding statutory and policy program alternatives which can be implemented in response to the altered federal grant program. The report deals specifically with 2 issues:

1. What changes, if any, should be made in the municipal pollution control grant program in 10 V.S.A., Chapter 55.

2. What changes, if any, should be made in program policy regarding the attainment of Vermont's water quality objectives.

II.. Background

Public Law 97-117 amended the federal Clean Water Act in December 1981 to provide for substantial reductions in federal financial assistance to municipal pollution control projects beginning in Fiscal Year 1985 (October 1, 1984).

The December 1981 amendment highlights are:

1. The authorized national appropriation for construction grant funding was reduced from $5 billion to $2.4 billion per year.

2. Each state was authorized to receive a minimum allotment of one half of one percent (½%) of the appropriated funds. Under this formula, Vermont will receive $12 million annually, down from the $15-17 million allotment received in recent years.

3. Beginning in Fiscal Year 1985 (October 1984), collection sewers will not be eligible for grant funding unless the governor of a state specifically sets aside up to 20% of a state's allotment for such grants. The Governor's action would make 55% federal grants available for collection sewers whose principal purpose is abatement of pollution.

4. Beginning in FY 84, reserve capacity of sewers and treatment/disposal systems will not be grant eligible. No grandfathering provisions apply to this amendment.

5. Beginning at passage of the amendments, no Step I grants (facilities planning) or Step II grants (preparation of final drawings and specifications) made.

6. Beginning in Fiscal Year 1985 (October 1984), the federal grant percentage will drop from 75% to 55% of the remaining eligible work. Certain projects may be grandfathered.

7. The former requirement that industrial users repay their proportionate share of the federal grant was deleted from statute.

Under Vermont's current State grant law, grants will automatically increase from a customary 15% grant to a 35% grant when the federal grant decreases from 75% to 55% in FY 85. This will increase the average annual State capital appropriation, required to match the anticipated $12 million federal allotment, from approximately $2.4 million to $6.8 million. In spite of expanded state funding, many towns will experience user charges exceeding those they can be reasonably be expected to bear. The current "ceiling grant" authorized under 10 V.S.A., §1625(a)(3) to provide additional grant funds to projects with user costs over $150 per year, will be effectively eliminated when the basic state grant is increased to 35% in response to the reduced federal grant.

The federal amendments postpone grant funding of preliminary and final engineering work (Step I and Step II) until construction is initiated. Vermont's engineering planning advance program, 10 V.S.A., §1591 - §1597 would, therefore, bear the total cost of such planning work, which requires

greater State appropriations in earlier years and which, in later years, would tend to reduce required appropriations as these planning advances are repaid at construction.

In addition, the reduced annual federal appropriation from a historic $15-17 million to $12 million, coupled with normal inflationary pressure will make it impossible to complete all 75 identified projects within the next 10 year period.

III. Current Grant Program

The current pollution control grant program (10 V.S.A., Chapter 55) provides for the award of up to a 35% grant to municipalities for the construction of sewage treatment plants, outfall sewers, interceptor sewers, pumping stations, overflow structures and other attendant facilities determined necessary by the Department for the abatement of pollution sources existing prior to October 18, 1972 (date federal Clean Water Act, P.L. 92-500 enacted) or otherwise necessary to comply with federal grant requirements. The statute limits the state grant award such that it, together with federal grants, shall not exceed 90% of the State eligible project costs except in five (5) specific cases (10 V.S.A., §1625).

1. Combined state and federal grants may equal 100% of the costs of phosphorus removal equipment and facilities.

2. Combined state and federal grants may exceed 90% when the municipality uses as its local share, federal funds allocated to them for the purpose of matching other federal grants.

3. Combined grants may exceed the 90% limit to defray eligible capital costs to reduce annual user costs to $150; however, the State grant may not be increased to greater than 35% of the State eligible project cost.

4. Combined grants may equal up to 94% where an increased federal grant is applied to fund innovative or alternative components of a project.

5. Combined grants may equal 100% of capital costs of work determined by the Department to be necessary to protect a natural resource under abnormal and unique circumstances.

Statute 10 V.S.A., §1622 also provides for a grant allowance of up to $3,000 for legal, fiscal and administrative project expenses of a municipality.

10 V.S.A., §1591 - §1595 provides for the award of engineering planning advances (interest free loans) to municipalities to conduct the necessary preliminary engineering studies and to prepare final construction drawings and specifications prior to initiating construction of a pollution abatement project. Awards are based on a Department finding that the cost of the project is reasonable for its intended purpose and that other funds are not readily available locally or through other established planning or design programs. The planning advances must be repaid when construction begins and repayment normally occurs by the appropriate sum being deducted from the first construction grant payment made shortly after construction begins. Statute 10 V.S.A., §1628 limits the amount of funds used for planning advance purposes to 30% of any grant appropriation by the General Assembly.

Payments on state grants are made at initiation of construction and after completion of the project. Ninety percent (90%) of the state grant

is paid at initiation of construction and a final payment of the audited balance is made upon completion. Payments on planning advances are made at 30, 60, and 90% completion and after approval of the planning documents. Payments may be made at other times at the discretion of the Department.

IV. Clean Water Act Amendments & Impact on Vermont's Grant Program and Capital Budget

The December 1981 amendments to the Federal Clean Water Act coupled with the existing State grant funding structure will sharply increase the State and local financial burden of pollution control projects. The impact on the State capital budget is best seen in the 1982 - 10 year capital plan.

The 10 year capital plan is prepared annually to project the cost of proposed capital construction for each of the next 10 years. The plan, which was prepared in the summer of 1982, based cost projections on the effects of the December 1981 amendments to the federal Clean Water Act and assumptions specifically identified below:

1. Congress will appropriate $2.4 billion annually for federal construction grant funding. This is the full appropriation authorized by the act.

2. Vermont will receive one-half of 1% of the congressional appropriation or $12,000,000 annually for the next 10 years.

3. The federal grant will decrease from 75% to 55% beginning in federal Fiscal Year 1985 (October 1, 1984), except for specific grandfathered projects.

4. Beginning in federal Fiscal Year 1985, the Vermont governor will establish a set aside of the federal allotment sufficient to

provide 55% federal grants on eligible collection sewers, which work would otherwise not receive any federal grant funding. The set aside is limited by statute to no more than 20% of the allotment.

5. Beginning in federal Fiscal Year 1985, the reserve capacity of treatment works and sewers will not be federal grant eligible, but would remain State grant eligible.

6. Beginning in federal Fiscal Year 1985, only secondary and justified advanced waste treatment plants, interceptors, infiltration/inflow correction and collection sewers (per governor's set aside) will be federal grant eligible.

7. Certain projects which had received an earlier federal grant for a project segment would be grandfathered to qualify for a 75% federal grant after FY 85, but in no case is reserve capacity federal grant eligible after FY 85.

8. Inflation would increase all costs at 8% annually.

9. The State grant would increase from a normal 15% (matching a 75% federal grant) to 35% (matching a 55% federal grant) after FY 85 except on "grandfathered" projects.

10. The State ceiling grant authorized by 10 V.S.A., §1625(a)(3) and intended to stabilize annual user costs at $150/family unit per year would not apply after October 1, 1984 because 10 V.S.A.,

§1625(a)(3) authorizes State grant increases up to but not exceeding 35%, which grant percentage would be the normal State companion grant to a 55% federal grant.

The State capital appropriations required to support this program are shown on Table 1 and Graph 1 (Summary). Graph 1 (Summary) also shows the past and projected total capital funding levels and past and projected state construction grant appropriations. It is clear from this graph that future state grant appropriations will increase sharply.

Prior to passage of the Clean Water Act Amendments of December 1981, the State capital appropriations required to support the grant program for the next 10 years would have been $32 million. Because of the federal amendments, the required capital appropriation for these projects will increase to $66 million. These State grant funds would be expended in 3 basic categories of grant authorization as follows:

1. Basic Grant, 10 V.S.A., §1625(a) - Normally a 15% grant matching a 75% federal grant. It will increase to a 35% grant matching a 55% federal grant after FY 85.

2. Phosphorus, 10 V.S.A., §1625(a)(1) - Normally an extra 10% State grant combined with a basic State grant of 15% and a federal grant of 75% applied to the design and construction of phosphorus removal equipment and facilities. Following reduction in the federal grant to 55%, the state phosphorus grant would remain at 10% which together with a 35% basic state grant, would bring the state share to 45% of phosphorus projects.

TABLE 1
Comparison of Annual Appropriations from
FY 81 10 Year Capital Plan and the
FY 82 10 Year Capital Plan

State Fiscal Year	1982 Capital Plan Required Appropriation (Alternative A)
1984	1,300,000
1985	4,700,000
1986	9,000,000
1987	7,200,000
1988	8,500,000
1989	5,400,000
1990	6,000,000
1991	8,000,000
1992	7,900,000
1993	8,000,000
	66,000,000*

State Fiscal Year	1981 Capital Plan Required Appropriation
1984	5,500,000
1985	5,013,000
1986	5,025,000
1987	5,013,000
1988	4,991,000
1989	4,968,000
1990	4,951,000
1991	4,947,000
	40,408,000*

*Note the totals are not comparable because each capital plan spans a different time period.

3. Ceiling Grant, 10 V.S.A., §1625(a)(3) - A variable grant which can increase the basic state grant up to but not exceeding 35%, such that it, in combination with federal grants, maintains the user costs for debt retirement and operating costs at $150/family unit/year. The ceiling grant does not defray operating costs. Because of the 35% State grant beginning in federal FY 85, the ceiling grant will not apply after that date.

Table 2 summarizes the capital requirements for the State grant program over the next 10 years and shows the distribution of these funds in the three categories.

The tables clearly show that with the reduction of federal grants from 75% to 55% in FY 85, the ceiling grant in its current form will not be useful, because the normal 35% State grant is already at the maximum level authorized by the ceiling grant enabling statute. These tables indicate that the cost of maintaining the ceiling grant, absent the 1981 amendments, would have increased above funding levels anticipated at the time of the ceiling grant enactment. Since the 1981 amendments operate to generally increase user cost and to sharply increase the required state matching grant, any action to continue utilization of the ceiling grant above the 35% state grant threshold would require annual state grant appropriations above those shown in Table 2. We believe that annual appropriation levels above those shown in Table 2 cannot be realistically anticipated.

The reduced federal grant funding also causes a sharp increase in the local cost of pollution abatement projects and the resulting annual user costs in spite of the increasing State grant funding. Table 3 shows a

TABLE 2

Pre Amendment State Grant Distribution

Fiscal Year	Required Appropriation	Basic Grant 10 VSA, §1625(a)	Phosphorus 10 VSA, §1625(a)(1)	Ceiling Grant 10 VSA, §1625(a)(3)
84	1.3	0.90	0.40	-0-
85	4.01	3.18	0.83	-0-
86	5.33	2.59	0.70	2.04
87	3.42	2.63	0.34	0.45
88	3.25	2.69	-0-	0.56
89	2.24	2.24	-0-	-0-
90	2.65	2.44	-0-	0.21
91	3.43	2.83	-0-	0.60
92	3.37	2.22	-0-	1.15
93	3.35	2.10	-0-	1.25
Total	32.35	23.82	2.27	6.26

Post Amendment State Grant Distribution

Fiscal Year	Required Appropriation	Basic Grant 10 VSA, §1625(a)	Phosphorus 10 VSA, §1625(a)(1)	Ceiling Grant 10 VSA, §1625(a)(3)
84	1.3	0.90	0.40	-0-
85	4.7	3.63	1.07	-0-
86	9.0	8.13	0.87	-0-
87	7.2	6.60	0.60	-0-
88	8.5	8.5	-0-	-0-
89	5.4	5.4	-0-	-0-
90	6.0	6.0	-0-	-0-
91	8.0	8.0	-0-	-0-
92	7.9	7.9	-0-	-0-
93	8.0	8.0	-0-	-0-
Total	66.0	63.06	2.94	

comparison of the local costs and annual user cost to be incurred by towns on the 10 year capital plan before and after enactment of the December 1981 amendments to the Clean Water Act.

The annual user costs to be incurred, particularly in the latter years of the 10 year plan are significantly above the $150 threshold sought by the ceiling grant and substantially above levels at which positive local bond votes could be expected. When the ceiling grant was enacted in 1978, the $150 limit represented a reasonable maximum user cost limit. Since then, general inflation pressure has increased all costs. If annual inflation is assumed at 8% and 10% annually, the $150 ceiling would increase in the manner shown on Graph 2. Graph 2 displays the annual user cost to be incurred by towns on the 10 year plan and the operation and debt retirement components of the user cost. The user costs are compared against the $150 ceiling inflated at 8 and 10% annually.

The FY 82 10 year capital plan programs 40 of the 75 identified municipal sewerage projects for construction (FY 84 - FY 93). Twenty eight of those projects (75%) would incur annual user costs above the $150 ceiling and fifteen projects (37.5%) would exceed the $150 ceiling inflated by 10%/year. This is summarized on Graph 2, which shows the relative portions of the annual user cost incurred for a) annual operations and maintenance expenses; and b) capital debt retirement for the sewage treatment plant and sewers.

TABLE 3

Comparison of Local Costs Before & After December 1981 Amendments to Clean Water Act

		Total Project Cost	Pre-Amendment Cost			Post Amendment Cost			% Increase	
Town	FY	($ million)	Share	User Cost $/family Unit/Year	Local $/family Unit/Year	User Cost $/family Unit/Year	Local Share	User Cost		
Rutland City, Seg. II	84	3.667	366,700	40	284,000	39	29	--		
St. Albans, Seg. I	84	9.534	1,188,700	72	1,188,700	72	--	--		
St. Albans, Seg. II	85	5.507	1,280,000	74	1,880,000	72	--	--		
Rutland Town	85	1.287	128,700	84	129,000	84	--	--		
So. Burlington (AP)	85	8.85	560,000	113	910,000	130	63	15		
*Shelburne F.D. #1	86	17.526	96,000	150	2,580,000	448	2500	200		
St. George	86	1.482	72,256	150	152,000	235	110	57		
Burlington, II/III	86	1.651		26	-0-	26	--	--		
Winooski, II/III	86	0.762		43	-0-	43	--	--		
Colchester F.D. #1 II/III	86	0.381		24	-0-	24	--	--		
Swanton	87	1.164	86,240	120	97,000	121	12	--		
Barre Town	87	5.384	538,400	94	540,000	140	--	50		
Bethel	87	4.475	92,358	150	638,000	308	590	100		
Troy	87	2.564	91,203	150	324,000	428	255	185		
Jefferson Hill	87	1.370	40,073	150	342,000	364	753	110		
Pawlet	87	0.959	19,576	150	164,000	459	738	206		
Burlington, Flynn Ave.	87	2.007	200,700	28	201,000	26	--	--		
Shelburne F.D. #1	87	0.411	-0-	96	-0-	96	--	--		
Shelburne F.D. #2	87	0.411	-0-	150	-0-	150	--	--		
So. Burlington (BB)	87	0.411	-0-	69	-0-	69	--	--		
Proctor	88	5.813	404,393	150	488,000	130	120	13		
No. Branch F.D. #1	88	2.220	222,000	150	222,000	824	--	--		
Castleton	88	4.144	53,000	150	414,000	221	680	47		
Bellows Falls	88	5.180	518,000	94	843,000	120	63	28		
Hartford-Wilder	88	2.368	236,800	96	399,000	106	68	10		
St. Johnsbury	89	10.934	965,400	146	1,012,000	148	--	--		
Windsor	89	5.760	576,000	120	700,000	130	22	8		
Williamington	90	3.927	375,673	150	422,000	161	--	7		
Ludlow	90	2.768	249,120	73	394,000	87	58	19		

V. Evaluation of Ten Year Project List

The forty projects on the 10 year capital plan are projects which are currently at some stage of development under the present funding program, and other projects drawn from the current federally required NEEDS list (discussed below).

These projects were grouped to evaluate their impact on water quality and their costs. These groupings are shown as Table 4 thru Table 8, and include project identity, funding year, State grant amount, and user cost. The project groupings are explained below.

Upgrades to Secondary (Table 4) - These projects involve existing treatment plants and sewage collection systems but require treatment plant upgrading from primary to secondary treatment, as required by State and Federal statutes. This category does not include treatment plants which are at a secondary level and must be upgraded to greater than secondary because of water quality problems.

The projects in this category have relatively low annual user costs ($79 to $264 per user), and would result in water quality improvement. The low user costs result from the fact that some capital expenditures have already been made in these projects for the collection systems and some treatment capability. The project costs in this group include treatment plant upgrade, existing sewer repair and rehabilitation and, in some cases, minor sewer extensions to abate existing points of pollution.

Upgrades to AWT (Greater than Secondary) (Table 5) - This category includes all treatment plants which must be upgraded to a higher level than secondary treatment. This advanced level of treatment is necessary because of the limited assimilative capacity of the receiving water or because phosphorus removal is required. The water quality problems which result from unacceptable phosphorus loadings are accelerated eutrophication, or depressed in-stream dissolved oxygen levels due to biological pollutant loads from the treatment plants. The depressed dissolved oxygen levels cause loss of fish habitat, loss of in-stream fauna, and undesirable esthetic effects.

These projects include existing primary and secondary level treatment plants, and will provide for treatment plant upgrading, additional capacity, sewer repair and rehabilitation and, in some cases, minor sewer extensions to abate existing pollution. Projects in this category have generally low user costs ($24 to $150 per user) and result in definite water quality improvements.

New Sewers & Secondary STPs (Defined Problems) (Table 6) - The projects in this category are those municipalities where investigations by the State or completion of preliminary engineering studies have indicated that a definite pollution problem exists and that some sort of community system will be necessary to solve the problem. None of these projects have treatment plants or any type of useable collection system at the present time, consequently, any project will have to build all new sewers as well as treatment plants.

The user costs in these projects ranges from high to very high ($323 to $1,138 per user) as a result of constructing entirely new systems. Estimated water quality benefits range from slight to significant but since these are presently raw sewage discharges, public health and safety would be enhanced by the projects.

New Sewers & Secondary STPs (Uncertain Problems) (Table 7) - Projects in this category are municipalities where raw discharges are known, or believed to exist and where some form of community system is, or may be necessary. In some cases, no recent detailed State investigation or preliminary engineering study has been done, so the actual extent of the problem and magnitude of necessary corrective action has not been precisely determined. Based on estimated costs for a community system, the user charges for these projects are generally very high ($303 to $1,580 per user). Since the actual extent of the pollution is not always well established, the improvement in water quality and public health resulting from the project is estimated to be generally minor.

TABLE 4

Upgrades to Secondary

Project	FY	State Grant	User Cost
Rutland Town	85	$ 322,000	$ 264/user
Barre Town	87	1,345,000	194/user
Proctor	88	1,389,000	198/user
Bellows Falls	88	1,295,000	162/user
Hartford-Wilder	88	592,000	158/user
St. Johnsbury	89	2,542,000	183/user
Windsor	89	1,363,000	164/user
Wilmington	90	989,000	241/user
Ludlow	90	648,000	108/user
Randolph	90	323,000	79/user
Fair Haven	90	321,000	122/user
		$11,129,000	

Note: The user cost in all cases is below the current $150 ceiling grant inflated by 10%/year.

TABLE 5

Upgrades to AWT
(Includes Phosphorus Removal Projects)

Project	FY	State Grant	User Cost
South Burlington (A.F.)	85	$ 2,513,000	$ 150/user
St. Albans	85	2,600,000	70/user
Burlington City	86	413,000	26/user
Winooski	86	343,000	43/user
Colchester F.D. #1	86	168,000	24/user
Swanton	87	367,000	122/user
Shelburne F.D. #2	87	158,000	150/user
Shelburne F.D. #1	87	158,000	96/user
South Burlington (B.B.)	87	158,000	69/user
Hinesburg	90	1,211,000	122/user
		$ 8,089,000	

Note: All user costs stay at or below $150/user/year.

TABLE 6

New Sewers & Secondary STPs
(Known Problems)

Project	FY	State Grant	User Cost
Sherburne F.D. #1	86	$ 4,191,000	$ 559/user
St. George	86	329,000	323/user
Bethel	87	1,052,000	411/user
Troy	87	623,000	757/user
Fairfield F.D. #1	90	393,000	1,138/user
		$ 6,588,000	

Note: All user costs are above the current $150 ceiling grant inflated at 10% year.

TABLE 7
New Sewers & Secondary STPs
(Uncertain Problems)

Project	FY	State Grant	User Cost
Jeffersonville	87	$ 344,000	$ 409/user
Pawlet	87	227,000	598/user
Colchester Town	91	5,105,000	396/user
Fairlee	92	937,000	659/user
Jericho	92	1,337,000	774/user
Townshend	92	511,000	592/user
St. Albans Town	92	721,000	663/user
Barnet	92	576,000	1,472/user
East Middlebury	93	3,645,000	1,580/user
Cambridge	93	246,000	536/user
Burlington, Flynn Ave.	87	501,000	31/user
Dover	88	555,000	928/user
Castleton	88	1,036,000	303/user
		$15,741,000	

Note: Almost all of these projects are above the present $150 ceiling grant inflated at 10% year.

VI. Needs List

The federal Water Pollution Control Act of 1972 (P.L. 92-500) requires that EPA submit a biennial report to Congress showing a detailed estimate of the cost of constructing all sewage treatment works required by the Act. This report, which is prepared with the cooperation of the states, is known as the NEEDS survey. In past years, a significant portion of any state's federal allotment was based on this survey, therefore, all communities which might need financial assistance under the Act have been included in the survey.

The original NEEDS survey listed all municipalities where problems might exist. Since that time, some communities have been deleted because necessary treatment works have been constructed, or it has been determined that no significant problems exist.

The current NEEDS survey is appended to this report as Attachment A. Some of the communities which are shown on this survey have constructed facilities to abate the major sources of pollution and are now in the survey only for some possible sewer extensions (i.e., Brighton). Projects such as these lie beyond the present 10 year capital plan and will have to be evaluated for actual need at some future point.

Costs of the NEEDS survey are organized into the seven categories below:

Category I - Secondary Treatment

Category IIA - Advanced Secondary Treatment

Category IIB - Advanced Treatment

Category IIIA - Infiltration/Inflow Correction

Category IIIB - Major Sewer System Rehabiltation

Category IVA - New Collectors and Appurtenances

Category IIB - New Interceptors and Appurtenances

The total state 1982 need in each category is shown on Table 8 and compared against previous needs surveys.

TABLE 8
Summary of NEEDS Survey

Category & Description	1982	1980	1978
I Secondary Treatment	$84,000,000	$82,814,000	$49,182,000
IIA Adv. Secondary Treat.	19,000,000	28,274,000	84,936,000
IIB Advanced Treatment	0	4,529,000	0
IIIA Infil./Inflow Correc.	7,000,000	2,435,000	2,296,000
IIIB Maj. Sewer Sys. Rehab.	3,000,000	6,600,000	10,864,000
IVA New Collec. & Appurt.	69,000,000	67,532,000	79,319,000
IVB New Inter. & Appurt.	29,000,000	37,284,000	32,192,000
Totals	$211,000,000	$229,468,000	$258,789,000
Number of Communities w/Needs	75	84	92

There are 75 Vermont municipalities with current NEEDS on the 1982 survey of which four are under construction. Forty (40) of these are in the Fiscal Year 1982 Capital Plan. Nineteen (19) are on the current 5 year project priority list for funding through federal fiscal year 1987. Assuming those projects currently scheduled for funding on the priority list can be completed, there will remain 52 projects with needs as shown on Table 9 to be funded after federal fiscal year 1987, twenty one (21) of which will be remaining from the 40 in the 1982 10 year Capital Plan.

TABLE 9
Projects with NEEDS to be Built After FY 87

Municipality	Estimated Project Cost	Project Type
*Barnet	1,060,000	Secondary STP and sewers.
City of Barre	4,134,000	AWT upgrade and sewer extension.
*Bellows Falls	6,801,000	Secondary upgrade and sewer ext.
Brighton	434,000	Sewer extension.
*Cambridge	450,000	Secondary STP and sewers.
*Castleton	3,559,000	Phosphorus upgrade and sewer ext.
Cavendish	691,000	Sewer extension.
Chelsea	123,000	Sewer extension.
Chester	883,000	Sewer extension.
*Colchester	15,531,000	Secondary STP and sewers.
*East Middlebury	6,689,000	Secondary STP and sewers.
Enosburg Falls	1,003,000	Sewer rehabilitation.
Fairfax	141,000	Sewer extension.
*Fairfield F.D. #1	912,000	Secondary STP and sewers.
*Fair Haven	1,403,000	Secondary upgrade and sewer ext.
*Fairlee	1,841,000	Secondary STP and sewers.
Hardwick	214,000	Sewer extension.
*Hartford (Wilder)	1,245,000	Secondary STP and sewers.
*Hinesburg	1,911,000	Phosphorus upgrade and sewer ext.
*Jericho	2,650,000	Secondary STP and sewers.
*Ludlow	1,629,000	Secondary upgrade and sewer ext.
Lyndon	534,000	Sewer extension.
Manchester	1,584,000	Sewer extension.
Middlebury	2,770,000	Sewer extension.
Montpelier	975,000	Sewer extension.
Morrisville	303,000	Sewer extension.
*North Branch F.D. #1	1,424,000	Sewer extension.
Northfield	1,301,000	Sewer extension.
Orwell	217,000	Sewer extension.
Pawlet (Town)	735,000	Secondary STP and sewers.
Pittsford	173,000	Sewer extension.
Poultney	1,210,000	Phosphorus upgrade and sewer ext.
*Proctor	3,573,000	Secondary upgrade and sewer rehab.
*Randolph	1,340,000	Secondary upgrade and sewer ext.
Richford	2,000	Sewer rehabilitation.
Richmond	66,000	Sewer extension.
Rochester	75,000	Sewer extension.
Royalton (South)	589,000	Sewer extension.
*St. Albans Town	1,429,000	Secondary STP and sewers.
*St. Johnsbury	8,929,000	Secondary upgrade and sewer ext.
Saxtons River	147,000	Secondary upgrade and sewer ext.
Shelburne F.D. #1	408,000	Sewer extension.
Shelburne F.D. #2	867,000	Sewer extension.
South Burlington (BB)	200,000	Sewer extension.
Springfield (North)	333,000	Sewer extension.

TABLE E-6 (continued)

Municipality	Estimated Project Cost	Project Type
*Townshend	975,000	Secondary STP and sewers.
Underhill	1,528,000	Secondary STP and sewers.
Vergennes	457,000	Sewer extension.
West Rutland	1,715,000	Secondary upgrade and sewer ext.
Williamstown	486,000	Sewer extension.
*Wilmington	2,535,000	Secondary upgrade and sewer rehab.
*Windsor	4,106,000	Secondary upgrade and sewer rehab.

*Remaining from 1982 10 Year Capital Plan.

VII. User Cost

One of the most important considerations in completing the pollution control program is the resulting annual cost to the users. In the past 10 years, user costs for Vermont projects have ranged from $50 to about $200 per user with the average being between $100-$130/user. Since small villages which needed to construct both treatment plants and collection systems tended to have user costs above these values, the state instituted a ceiling grant program in 1977 designed to keep the user cost to a maximum of $150/user. This was done by increasing the State's capital contribution and decreasing the local capital cost. As stated earlier in the report, the reduction of federal funding effectively eliminates the ceiling grant beginning in federal Fiscal Year 1985 (October 1, 1984).

In order to form a common base for comparison, the Department develops an equivalent user cost for each project. An equivalent user is defined as a single family residence. Commercial, industrial and institutional entities are evaluated to determine how many single family residences they are equivalent to. (For example, if the flow from a single family residence is 300 gpd and a commercial user generates 3,000 gpd, sanitary waste that user would be counted as 10 equivalent users). For purposes of this report, local capital costs were amortized for 20 years at 10% interest.

The yearly local payment to cover the bond retirement is then added to the yearly operating cost and the total divided by the total equivalent users in the project. The result is the equivalent user cost for the project.

Excessively high user costs appear to occur in small communities where both a sewage treatment plant and collection systems must be built. Communities requiring only upgrades to secondary or higher levels have user costs that appear acceptable when inflationary aspects are considered. At the present time, it does not appear reasonable to propose any additional state funding to reduce user costs. Those projects with high user costs due to major collection systems are not scheduled to be constructed until later in the program when other changes may occur in the federal grant provisions. During the intervening period, opportunity is available to further study those specific high user cost projects to explore ways of lowering costs by new technology or by construction phasing. At the present time, federal regulations require that all operational costs be paid only by the users of a system so there appears to be no way at present to directly reduce user costs for municipalities burdened with high operating expenses.

VIII. Alternatives Studied

The preceding chapter makes it clear that the current program envisioning construction of 75 municipal pollution control projects cannot be completed in the forseeable future. Several of the projects identified have imprecisely defined problems or have been carried on project NEEDS lists for several years without any recent detailed evaluation of the actual pollution problem and health hazards associated with that project. The current structure of the state grant law would require what appears to be excessively large annual capital appropriations in order to fully match anticipated federal grant appropriations. The annual equivalent user cost expected to be incurred by several small town projects is excessively high, and affirmative bond votes are doubtful in those communities. In addition to the major program changes legislated in December 1981, the U.S. Environmental Protection Agency is currently proposing policies and regulatory changes which would mandate that all communities comply with the minimum national standards of pollution abatement by 1988 with or without benefit of federal construction grant funding. Regulations are also being proposed which would lower federal water quality requirements and treatment standards to only those necessary to achieve an attainable and economically justifiable use of the receiving water.

Against this background, the Department has developed alternative courses of action which can be compared to best determine what program adjustments, if any, should be initiated.

Alternative A - No change in current program. Appropriate sufficient state grant funds to match anticipated federal grant allotments. Changes in funding percentages effectively eliminate state ceiling grants.

Alternative B - Same as A except limit state grant appropriations to say 3,000,000 annually, and release unmatched federal grant allotments to the highest priority project wishing to use them, which would be the requisite 45% local share.

Alternative C - Reduce the state grant to a maximum of 25% eliminating the ceiling grant.

Alternative D - Reduce the state grant to a maximum of 25%, eliminate the ceiling grant, phase projects with unacceptably high user costs and following Department examination of a project with improperly defined pollution problems, delete it from the list of project NEEDS and using state permit authority under 10 V.S.A., Chapter 47, order the requisite individual pollution abatement steps, or order implementation of a phased program for attaining water quality standards.

A. Alternative A - No change in current program. Appropriate sufficient state grant funds to match expected federal grant allotments.

1. Elements of Alternative A

The alternative assumes no change in current state statute or regulation. The current project priority system would be used to identify those projects to be funded from anticipated federal and state construction grant funds. State grant appropriations would increase to $7 - 9 million annually necessary to provide a 35% grant matching a 55% federal grant supported by a $12 million annual federal allotment. The ceiling grant authorized by 10 V.S.A., §1625(a)3 would be effectively eliminated after October 1, 1984 since the normal state grant would be at the 35% maximum allowed by §1625(a)3. This alternative assumes the Governor would adopt the 20% set aside of federal grant funds for the collector sewer funding.

2. Impacts of Alternative A

The required annual state grant appropriations would be as shown in Table 2 (Page 13). Appropriations of that magnitude would represent a sharply increased fraction of the overall state capital budget assuming level capital funding in future years or assuming declining capital funding with continued maintenance of the 90% bonding limit.

Seventeen (17) of the forty (40) projects (42%) shown on the FY 82 10 Year Capital Plan will have annual user costs in excess of $150 per equivalent family unit. Fifteen (15) of those (30%) will have costs exceeding $150 inflated at 10% annually since the 1978 enactment of the

ceiling grant, as shown on Graph 2 (Page 17). Projects projected to have excessively high user costs are generally those small towns which a) have an imprecisely defined need for a central sewerage and treatment system; or b) have no existing sewage collection system or treatment and must build new original sewers and treatment facility supported with a limited economic base.

3. Program Response to Impacts

Since the current program would continue, there is little need for major program adjustments. High user cost projects which fail to vote the necessary local funds will be bypassed for federal funding in favor of funding the next highest priority project ready to proceed. The Department will have to liberalize use of planning funds to insure timely availability of the next highest priority project to receive federal grant funds before those funds are realloted to other states.

B. Alternative B - Same as A except annual state grant appropriation limited to say $3,000,000 and the unmatched federal funds would be made available for use by the next highest priority project ready to proceed which votes the required 45% local share.

1. Elements of Alternative B

This alternative contains all the elements of A except that a reduced state appropriation of $3 million instead of $7 - 9 million would be enacted yearly. The three million dollars was selected as representative of recent annual appropriations.

2. Impacts of Alternative B

The user cost impacts here would be identical to A for those projects receiving both state and federal aid. However, many projects would probably delay construction, waiting award of both state and federal grants, thereby acerbating the user cost problem with inflation due to delay. Any project with high or marginally high user cost is unlikely to proceed without all available grant funding. The local share and user costs would increase significantly for those projects requesting only federal aid.

The 3 million dollar state appropriation will generally match a 4½ million federal appropriation after October 1, 1984 leaving 7½ million federal grant dollars which may be used by the next highest priority project ready to proceed and which has voted the requisite 45% local share. If not used, these funds will be lost to Vermont through reallotment to other states 24 months after the beginning of the fiscal year. It is anticipated that most towns will defer construction until state grant funds are available and that the only projects which would proceed without state grants would be those with a strong local desire for sewerage and adequate financial resources. This would likely arise where substantial business interests require sewerage to support speculative development or where existing businesses are realizing profits substantially below potential because of the cost of frequent septic system repair or because of the costs of pumping and hauling sewage under a health order. It is unlikely this kind of demand for federal funding would reach 7½ million annually. It should be anticipated that most or all of the unmatched federal grant funds would be realloted to other states.

Assuming reallotment of 7½ million annually, the rate of municipal pollution abatement progress would be reduced to only 38% of that realized with full obligation of the annual 12 million federal construction grant allotment. Table 10 compares projects in the present FY 82 10 year capital plan with a companion project list which assumes the return of 7½ million dollars in federal grant monies. This assumption means that our effective available allotment is 4½ million federal dollars annually.

TABLE 10

	Present Project List 10 Year Capital Plan	Alternative B Project List 10 Year Capital Plan
FY 1984	Rutland City St. Albans	Rutland City St. Albans
FY 1985	Rutland Town So. Burlington (Airport)	St. Albans
FY 1986	Sherburne F.D. #1 St. George Burlington City Winooski Colchester F.D. #1	St. Albans Rutland Town South Burlington (Airport)
FY 1987	Swanton Barre Town Bethel Troy Jeffersonville Pawlet Burlington, Flynn Avenue Shelburne F.D. #1 Shelburne F.D. #2 So. Burlington (Bartletts)	South Burlington (Airport) Sherburne F.D. #1
FY 1988	Proctor Dover Castleton Bellows Falls Hartford-Wilder	Sherburne F.D. #1
FY 1989	St. Johnsbury Windsor	St. George Burlington City Winooski Colchester F.D. #1 Swanton Barre Town
FY 1990	Wilmington Ludlow Randolph Fair Haven Hinesburg Fairfield F.D. #1	Barre Town Bethel Troy

FY 1991	Colchester Town	Jeffersonville Pawlet Burlington, Flynn Avenue Shelburne F.D. #1 Shelburne F.D. #2 So. Burlington (Bartletts) Proctor
FY 1992	Fairlee Jericho Townshend St. Albans Town Barnet	Proctor Dover Castleton Bellows Falls
FY 1993	East Middlebury Cambridge	Hartford-Wilder St. Johnsbury

3. Program Response to Impacts - Alternative B

The Department believes that such severe curtailment of the pollution control program makes Alternative B unacceptable. Whatever program adjustments are adopted, they should provide for the optimum use of limited financial assets. Vermont's federal grant allotment is the major source of capital used to construct municipal sewerage systems and, therefore, should be completely utilized toward that end.

Should this alternative be adopted, the Department would consider the development and publication of an alternative project priority list ranking projects potentially suitable for funding with federal grant funds but without State grant funds. Towns would be positioned (ranked) according to the same criteria now used in the priority system plus one additional criterion, that sufficient local funds have been voted. A town would be placed upon the alternative priority list upon request of the selectmen and an affirmation by them that the town will, in their opinion, vote the requisite local share.

The Department would also consider liberalizing use of engineering planning advance funds under 10 V.S.A., Chapter 55, Subchapter 2 to allow those towns willing to proceed with only federal and local funding to complete the necessary engineering planning as quickly as possible, thus allowing them to initiate construction, optimize use of federal grant allotments, and minimize inflationary impacts. A companion consideration would be to propose legislation which would authorize the Department to release such towns from their obligation to repay engineering planning

advances. The released planning advance would, in effect, be a state grant for the engineering planning.

C. Alternative C - Reduce the State grant to a maximum of 25% and eliminate the ceiling grant.

1. Elements of Alternative C

This alternative proposes reduction of the maximum state grant to 25% which grant would match a 55% federal grant after October 1, 1984. The ceiling grant is also eliminated. This alternative assumes the Governor would adopt a 20% set aside of the federal allotment to provide grant funds for collection sewers.

2. Impacts of Alternative C

The required annual state grant appropriation to fully match a 12 million dollar federal grant allotment would be 1.3 to 6.7 million dollars. Future appropriations based upon a full federal match and the 10 Year Capital Plan are shown on Table 11 and Graph 1 (see SUMMARY).

TABLE 11
State Grant Appropriations Required
to Implement the 10 Year Capital Plan
under Current Statutes and under a 25% State Grant

Fiscal Year		Current State Grant (millions)	25% State Grant (millions)
84		1.3*	1.3
85		4.7*	4.0
86		9.0	4.8
87		7.2	5.0
88		8.5	5.3
89		5.4	4.0
90		6.0	5.2
91		8.0	6.0
92		7.9	5.8
93		8.0	5.3
	Totals	66.0	46.7

*The capital funding bill submitted to the 1983 General Assembly requested $2.9 million for FY 84 and $3.1 million for FY 85, which represents a shift of $1.6 million from FY 85 to FY 84 to prevent a cash flow shortage which would have occurred due to the delayed receipt of planning advance returns.

This alternative would increase the local share of all proposed projects and would also increase annual user costs (see Table 12). Most projects, however, will continue to experience user cost levels which would be supported with affirmative bond votes. The user costs on some projects will be too high to secure local support and those projects will be passed over in favor of the next highest priority project ready to proceed. The excessive user costs generally occur on small town projects requiring the original construction of both sewer collection and treatment facilities.

The reduced state grant percentage will allow full matching of the federal grant allotments with what appears to be a reasonable increase in the annual capital grant appropriation. This is a particularly desirable feature because the limited availability of federal grant funds controls the rate at which municipal pollution abatement progress is made, and all federal funds will be used under this alternative. Progress in pollution abatement will continue at a satisfactory rate though some projects may be passed due to lack of local funding (See Graph 3).

3. Program Response to Impacts - Alternative C

Assuming annual appropriation of the requisite state grant amounts, the program would continue to make progress at the current rate. It should be noted, however, that the bypass of small town, high user cost projects in favor of the next highest priority project ready to proceed, will effectively preclude construction in those bypassed projects until another source of project funding is available to reduce user cost. Federal grant allotments are available for obligation for a 24 month period following

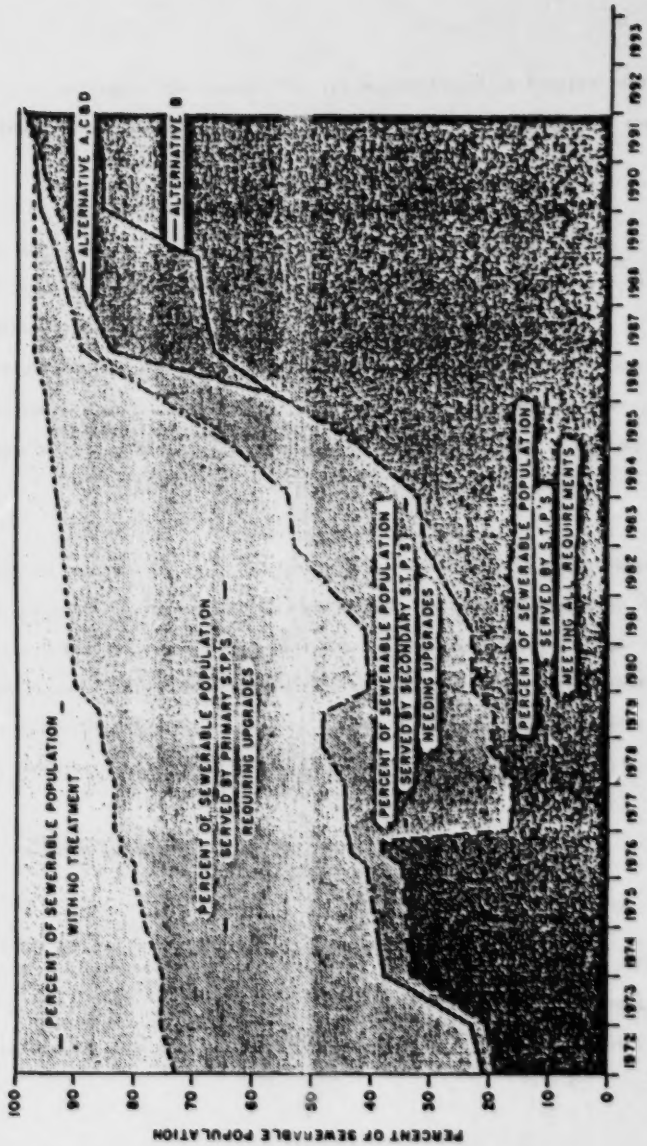
beginning of the fiscal year for which they are appropriated. Unobligated funds are redistributed to the states at the end of that period. Fall back projects must, therefore, be available to insure total effective use of federal funds. In order to insure the timely availability of the "next highest priority project", the Department must consider liberalizing its use of planning advance funds to complete final designs of projects one or more years ahead of the projected funding date.

TABLE 12
Local Share and User Costs
of Projects on the 10 Year Capital Plan
Under Alternative C

State Grant Limited to 25%

		Total Project Costs (million $)	Local Cost	Annual User Cost
Rutland City, Seg. II	84	3.667	366,700	40
St. Albans, Seg. I	84	9.534	1,188,700	72
St. Albans, Seg. II	85	5.507	1,280,000	74
Rutland Town	85	1.287	257,000	159
So. Burlington (AP)	85	8.85	1,338,000	150
Sherburne F.D. #1	86	17.526	2,610,000	559
St. George	86	1.482	94,000	323
Burlington, II/III	86	1.651	-0-	26
Winooski, II/III	86	0.762	-0-	43
Colchester F.D. #1, II/III	86	0.381	-0-	24
Swanton	87	1.164	86,240	120
Barre Town	87	5.384	1,076,000	194
Bethel	87	4.475	996,000	411
Troy	87	2.564	599,000	757
Jeffersonville	87	1.370	405,000	409
Pawlet	87	0.959	229,000	600
Burlington, Flynn Ave.	87	2.007	406,000	28
Shelburne F.D. #1	87	0.411	-0-	96
Shelburne F.D. #2	87	0.411	-0-	150
So. Burlington (BB)	87	0.411	-0-	69
Proctor	88	5.813	1,120,000	198
Dover	88	2.220	444,000	458
Castleton	88	4.144	829,000	303
Bellows Falls	88	5.180	1,362,000	162
Hartford-Wilder	88	2.368	636,000	158
St. Johnsbury	89	10.934	1,534,000	173
Windsor	89	5.760	1,149,000	165
Wilmington	90	3.927	764,000	241
Ludlow	90	2.768	602,000	108
Randolph	90	1.380	228,000	79
Fair Haven	90	2.032	348,000	122
Hinesburg	90	3.460	346,000	122
Fairfield F.D. #1	90	1.577	332,000	1138
Colchester F.D. #1	91	18.928	3,920,000	396
Fairlee	92	3.745	840,000	659
Jericho	92	5.353	1,183,000	774
Townshend	92	1.933	377,000	592
St. Albans Town	92	2.886	638,000	663
Barnet	92	2.141	454,000	1472
East Middlebury	93	14.582	2,193,000	1580
Cambridge	93	0.981	222,000	536

GRAPH 3
PROGRESS OF STATE POLLUTION ABATEMENT PROGRAM



D. Alternative D - Same as Alternative C but allow phased attainment for projects with excessive user costs.

1. Elements of Alternative D

This alternative is the same as Alternative C in that a maximum 25% State grant would be used to match 55% federal grants made after October 1, 1984. The ceiling grant would be eliminated. The annual State capital appropriations would range from $1.3 million to $6.7 million as shown in Table 11 (Page 41). The major difference between these two alternatives is that in Alternative D, excessively high user cost projects and projects with imprecisely defined pollution problems would be evaluated by the Department, and where feasible, a program of phased attainment of water quality standards would be adopted and implemented.

2. Impacts of Alternative D

As in Alternative C, the local share and annual user cost would be increased by this alternative. It appears that most projects will have acceptable user costs and the program's rate of progress in pollution abatement will not be slowed significantly (Graph 3, Page 44). Federal construction grant allotments will be fully utilized and municipal pollution abatement progress will continue unchecked. Small municipalities needing all new sewers and treatment facilities will have their already high user costs increased by this alternative. Upon failure to vote

requisite bonds, they will be passed over in favor of funding the next highest priority project ready to proceed. The project will be repeatedly passed over in subsequent years in favor of lower priority projects with locally acceptable user costs.

3. Program Response to Impacts

The Department would evaluate the water quality and economic impacts of phasing excessively high user cost projects. The evaluations would generally proceed in the manner described below. The Department favors Alternative D because, in addition to using all available federal funds, it provides for more cost effective use of the funds in reducing pollution and assistance to some municipalities which may be passed over in Alternative C.

Projects in Tables 6 and 7 (New Sewers & Secondary STPs - Defined Problems; and New Sewers & Secondary STPs - Uncertain Problems) may result in excessively high user costs with correspondingly low probability of voter approval, and excessively high State and federal grant costs. In addition, some of these projects have not had the severity of existing pollution verified for a number of years, leaving some uncertainty as to whether or not a project is still required.

Projects with uncertain problems (Table 7) should be evaluated by the Department to determine the severity of the actual pollution problem, and

to see whether a State-funded municipal treatment system or some alternative approach to attainment of water quality standards is needed. Such a program is detailed in Attachment A.

Projects shown on Table 6 (Projects with Known Problems) also need further evaluation. These communities have projected annual user charges ranging from $343 to $1,138. Experience indicates that projects generating user charges exceeding $300/user/year have little chance of gaining voter approval. These municipalities do, however, have well defined pollution or health hazard problems and a central sewage collection and treatment system will ultimately be required to permanently eliminate health hazards or to achieve water quality standards. Since the current structure of federal and State funding programs cannot reduce annual user charges to reasonable levels, interim action should be taken now to reduce the health and pollution problems, leaving implementation of the full project to a future time. The Department has considered two options as a means of dealing with this matter. These options and the detailed program are contained in Attachment B.

IX. History of State Grant Program

In 1947, Vermont enacted its basic water conservation law which created the Water Conservation Board and formulated the water quality management policy for the State. The direct purpose of the Board in regar to implementing of pollution control facilities was to "encourage the construction of sewage disposal plants by municipalities and encourage the construction of septic tanks and other proper methods of waste and sewage disposal in rural and industrial areas." The concept of water pollution abatement up to this time had been essentially nonexistent. Municipalities in the State generally maintained and expanded sewage collection systems built in the late 1800's and early 1900's which discharged on river banks or directly to the streams. Rural pollution control systems usually consisted of outhouses, cesspools, or septic tanks "straight-piped" to the stream. Two municipalities (St. Albans and Manchester) had treatment facilities constructed during the public works era after the Depression; however, few of the remaining municipalities had begun the initial planning or even considered such facilities necessary.

The Water Conservation Board from its creation until 1949 developed a program for preserving water quality in Vermont streams by a twofold approach which became law in 1949. First a formal procedure was created for classifying State waters into use categories, defined for each drainage basin in a specific classification order issued by the Board. The classification order directed known pollutors to undertake engineering planning and construction of abatement facilities in accord with a schedule of accomplishment. Second, a system was established requiring persons to

obtain a permit from the Board for any increase in any existing pollution source or the creation of a new pollution source.

Through the implementation of the classification program and the permit procedure, the Water Conservation Board began a public information campaign encouraging construction of municipal and rural pollution control facilities and began an inventory of the actual pollution problem.

In the early 1950's nationwide social and economic considerations focused attention on public works facilities and, as a portion of the Housing Act of 1954, a Planning Advance Program was instituted by the Housing and Home Finance Agency which provided interest free loans to municipalities for public works planning. Through this program, a number of communities initiated engineering planning of treatment facilities. Continued emphasis on pollution control resulted in the passage of the first federal grant provisions in July 1956. Public Law 84-660 established federal aid on interceptor sewers and treatment works in an amount not to exceed 30% of the eligible costs. The State of Vermont in order to provide additional assistance to its municipalities, passed a State grant law, P.A. 239 of 1957, which established a grant of 20% of the eligible project costs. The State law, while developed in accordance with P.L. 660, actually provided for state grant participation in a more extensive "pollution abatement" project. State aid was provided on any portion of a new system which abated existing pollution, while the federal grant applied only to interceptor sewers and actual treatment facilities. Due to this restriction on of federal funding, initial projects were undertaken mainly by major municipalities which had basic sewer collection systems serving most users, but needed treatment works and interceptor sewers.

Until 1961, administration of the classification and grant programs was accomplished by the staff of the Water Conservation Board. Act 329 of 1959, effective March 1, 1961, reorganized State government into constitutional offices and administrative departments. An executive order based on the directive of the Act established the Department of Water Resources. Complementary legislation introduced in 1961 renamed the Water Conservation Board as the Water Resources Board and distributed duties according to the functional relationship of the two entities.

Through intensive staff effort and direct meetings with municipal officials during the classification proceedings municipalities were encouraged to proceed rapidly with engineering planning preparatory to construction with financial assistance from by the HHFA planning advance program. As a result of increased public awareness and the public works program guidance and encouragement, 69% of the estimated serviceable population in Vermont had primary treatment facilities completed or under construction by December 1964.

In 1965, several significant changes occurred in the implementation of both State and federal water pollution control programs. Technology expanded to more accurately identify effects of pollution on receiving waters while sewage treatment technology advanced to permit the economical construction of reliable secondary sewage treatment plants. The Water Resources Board, recognizing that water quality standards could not be met by construction of primary facilities, established secondary as the minimum acceptable degree of treatment for the State of Vermont, and in so doing, became forerunner of similar federal legislation enacted in 1972.

Simultaneously with this and with the completed construction of primary plants and interceptor sewers in most larger communities, the program focus shifted to pollution abatement for smaller communities which did not have existing collection sewers. These smaller communities with more limited tax bases had to bear the added cost of constructing such collection systems, then ineligible for federal assistance, which placed a heavy burden on these towns.

Two major federal public works bills passed in 1965 were directed toward alleviating this problem. Public Law 89-117, administered by the Department of Housing and Urban Development, provided up to 50% aid on public works projects in urban areas and specifically promoted the abatement program by providing aid for sewage collection systems not eligible for aid from the Federal Water Pollution Control Administration (P.L. 660) and for combined sewer separation projects. Public Law 89-240 sponsored by Senator George Aiken and administered by the Farmers Home Administration, was a complementary bill for rural areas. These grants, carefully coordinated with the provisions of the basic federal aid, allowed Vermont to avoid a major curtailment of its construction program.

Vermont, in a concurrent effort to reduce the cost of pollution abatement for the small communities with limited economic base, enacted 24 V.S.A., Chapter 80. This grant was in addition to the basic 20% grant and was based on a sliding scale relative to the economic status of a community as compared to the State average. In no case could the incentive grant increase State and federal aid beyond 90% of the eligible project costs. Combined sewer separation costs were not eligible for State aid at this time unless they were an integral part of a pollution abatement project.

In 1966, the supplementary federal grants and the planning advance program funds were seriously underfunded and so backlogged with applications that twelve to fifteen month delays in funding were routine. Continuing inflation coupled with negative economies of scale prevented many rural communities from funding engineering planning or construction projects locally and in many cases the cost of basic interceptor and treatment projects were beyond the financial capability of municipalities not qualifying for the economic incentive grant.

In order to maintain the flow of construction projects being delayed by the lack of available planning funds, the State of Vermont, under this act, initiated a planning advance program similar to the HHFA Program, and also added a provision to the grant law which allowed State grant funds to be used to prefinance federal aid. This prefinance provision, valid until July 1, 1973, enabled the State to provide funds to a project and initiate its construction prior to allocation of its full federal share. During the construction phase, the federal grant was increased when funds became available and the State prefinancing funds were reclaimed.

Over the course of the construction program, combined sewer separation projects had not been eligible for federal or state aid except under the HUD and FHA Programs. In order to coordinate that storm sewer separation work necessary for pollution abatement with the basic water pollution control program, the State made provision for such limited scope facilities in the planning advance program and established a grant program for aid up to 50% of the eligible costs of such projects. The criteria for receiving such grant was that a substantial enhancement of water quality must result from the combined sewer separation work.

The Clean Water Restoration Act of 1966 extensively amended the federal grant law, effective July 1, 1967, to allow a maximum grant of 55% of the eligible project cost. Specific incentives were established to encourage State participation in pollution control projects and in the development of enforceable water quality standards. In order to maintain eligibility for maximum federal aid for Vermont communities, the State passed Public Act 193 of 1967 which increased the State grant to 30% and thereby made all Vermont municipalities eligible for 40% federal aid. The State water quality standards were submitted for approval to the Federal Water Pollution Control Administration and upon their acceptance, all communities discharging to waters in classified areas became eligible for 50% federal aid. The State, in 1971 by legislative act, classified as Class B all waters which had not been previously classified by the Water Resources Board, thereby making all Vermont communities eligible for 50% federal aid. An additional grant of 10% of the basic federal grant was available if the project met certain regional planning requirements established by the Department of Housing and Urban Development.

The water pollution control program continued essentially unchanged until 1970; however, the influx of population in the late 1960's substantially altered the scope of the recognized pollution abatement program. In January 1965, the estimated total population to be served was 182,000 and approximately 69 percent were adequately served by primary pollution control facilities. In January 1970 - after the construction of 30 projects serving 60,000 persons - the estimated total population to be served was 245,000 and the percentage adequately served was 72%.

In 1970, significant changes were made in the resource management philosophies of the State. The Agency of Environmental Conservation was established, of which the Department of Water Resources was a part. The increasing population, a source of State-wide problems over the past few years, resulted in the passage of Act 250, the Land Use and Development Act, established to adequately control the proper use of Vermont's resources. Act 252, a revitalization of the long-established discharge permit program, changed the policy of pollution control for new sources to a policy of pollution abatement for all sources to achieve and maintain water quality standards.

As an integral part of the environmental conservation process, Governor Davis declared the pollution abatement program to be a priority program and the legislature mandated a ten year program for total pollution abatement with a commitment of up to $50,000,000 of State funds over the ten year period.

By 1971, the continuing reduction in community size requiring treatment facilities, inflationary construction costs and economic constraints resulted in the majority of communities receiving 90% aid under the equalization-incentive provision. Therefore, 24 V.S.A., Chapter 80 was repealed in an action which also recollated the statutes and increased the basic State grant to 35%. Although this brought the usual aid to municipalities on most basic federal projects to 90% and on the collection systems with State aid and supplementary federal grants to 85%, executive restrictions on funding for the supplementary federal programs had again placed the major burden of funding collection systems on the community.

Single family household (user) costs even with supplementary aid on a project, were frequently over $100 annually.

The rising cost of pollution control, reflected in the user costs, caused the legislature to establish a Joint Legislative Sub-Committee on Pollution Control in 1971 to study the program as a whole. The Committee studied several methods of equalizing user costs to communities, the most prominent of which incorporated a reimbursement for the cost of facilities to date to reduce the annual user charge to $60. Cost of operations was to be borne by the municipality. Amortization of 20 year bonds at 5% interest was uniformly used as a basis for comparison of alternatives.

At that time, the ten year pollution abatement program for Vermont consisted of 81 projects with a total estimated construction cost of $87,905,000 with costs to the State of $44 million (at the $60 ceiling noted above). During the development of the various proposals, it became apparent that significant legislative changes were being prepared for the federal aid program, and reasonable estimates of the altered aid program were incorporated in the committee's evaluations. The revised $60 ceiling proposal resulted in costs as follows: federal aid at 75%, $65,928,887; State basic funds, $13,185,769; State floating and reimbursement funds, $11,771,972; and local costs of $3,425,430. Due to the uncertain status of federal legislation, no action was taken on the program.

The General Assembly of 1973 amended 10 V.S.A., Chapter 55 to provide that the combination of State and federal grants not exceed 90% of the eligible project costs. This act was taken in response to passage of the federal Water Pollution Control Act, P.L. 92-500 in October 1972, which act

established a basic federal grant of 75%. The increased planning and administrative requirements of the federal act increased planning costs. The federal act did authorize award of 75% federal grants at the preliminary planning (Step I) and final planning (Step II) stage, however, the overall cost increases were such as to require increased planning advance awards to pay the remaining 25% of planning costs. The General Assembly in 1975 increased the portion of a grant.

During the 1975 session, the General Assembly also enacted Public Act #121 which limited the authorization of new bonds to be approved by the legislature in any year to 90% of the value of the bonds to be redeemed in that year. This action was taken in response to actions by certain financial institutions which had lowered their rating of Vermont bonds, which action would increase the interest expense of State bonding activity.

In 1976, the legislature, in Act #254, granted the Agency Secretary authority to transfer grant funds between the water supply and pollution control municipal grant appropriations with approval of the Secretary of Administration and the Emergency Board.

During 1977, the legislature, in Act #39, relaxed for certain circumstances the limitation that combined State and federal grants not exceed 90% of the eligible project costs. One provision allowed the combination of State and federal grants to equal 100% of the costs of phosphorus removal equipment and facilities. This action was taken as a component part of a strategy to curtail eutrophication of lakes by reducing the introduction of nutrient phosphorus originating from household laundry

detergents and by removing phosphorus at municipal sewage treatment plants designated by the Agency Secretary.

The same act also relaxed the 90% combined grant limitation to allow a municipality to use for its local share, federal grants which were awarded with the intent of matching other federal grants. The Public Works Employment Act of 1976 (P.L. 94-369) made substantial grant sums available to Vermont municipalities which could be used to match other federal grant programs.

During this period, the Department and the General Assembly had continued to be concerned with the increasing annual user costs being generated by pollution control projects, particularly in small towns. The concept of a ceiling grant to limit annual user cost to a ceiling value, first studied in 1972, was reconsidered and enacted into statute in 1978. Public Law #241 of that year further relaxed the 90% limitation on combined State and federal grants to provide for an increased State grant award, not to exceed 35%, which with federal grants would reduce the annual user cost to $150. The municipality would pay all operations and maintenance cost. Interest rates and amortization periods were specified in statutes for uniformity of computation. The same act relieved the 90% limit up to 94% for projects receiving increased federal grant (85% instead of 75%) for innovative or alternative components of a project. The limitation was also lifted for projects which protect Vermont's natural resources under unique and abnormal circumstances. The act made provision for up to a $3,000 allowance to municipalities for legal, fiscal and administrative costs incurred in completing a project.

The legislature in 1978, designated the Department of Forests and Parks as an eligible applicant for water supply and pollution control construction grants under 10 V.S.A., Chapter 55 where significant water supply or pollution control improvements were to be made in State parks. This designation was later expanded to all State administrative departments in Public Act #44 of 1981.

Attachment A

Department Programs for Evaluations

Step I - Department Evaluation of Pollution Problems

1. Field identification and verification of pollution points. This will be a detailed pollution point survey; done by the Water Resources Investigators, usually accompanied by an engineer from the Water Pollution Control Section.

2. Determine if individual on-lot, pollution abatement is economically and technically feasible. This evaluation will be done by engineers in the Water Pollution Control Section utilizing field information gathered above. The engineers will first determine if it is technically possible to abate the pollution problems located by the survey through individual, on-lot, methods. This feasibility will be based on the current Vermont Health Regulations, Chapter 5, Subchapter 10, Part II (Wastewater Treatment and Disposal - Individual On-Site Systems). Section 5-930 of these regulations allows deviations from technical requirements of the regulation for systems designed to eliminate public health hazards, nuisances, or sources of pollution from existing structures. The Department will utilize reasonable deviations from those regulations in its evaluation.

3. If the Department determines that some form of municipal collection and treatment system is required and that individual pollution abatement is not feasible, the project will be considered to have well defined problems and moved to Table 6. If the Department determines that the individual on-lot alternative is feasible, then the second step of this process (below) will be carried out.

Step II - Pollution Abatement by Individual Systems

1. When the Department has determined that individual pollution abatement is the technically feasible, cost effective means of achieving water quality standards, then it will meet with the municipality to review and explain its findings and to assist in developing a program to cause construction of the needed individual facilities. Central to this matter is a question of who will assume responsibility for causing construction of individual facilities. If the municipality assumes that responsibility, the Department will issue a temporary pollution permit (10 V.S.A., Chapter 47) to the municipality, listing the sources of pollution to be abated and containing an appropriate schedule for completion of the work, generally one or two construction seasons. If the municipality declines responsibility, the Department will contact each individual polluter, issuing temporary pollution permits to each with appropriate standards.

   It should be noted that a municipality may receive federal and State construction grants to construct individual systems where the municipality assumes responsibility for a number of such systems. Should the municipality elect to do so, it will be funded in appropriate priority order with other Vermont projects competing for grant funds.

2. The Department, through its Water Pollution Control Section, will provide limited technical assistance to the municipality or individuals in siting needed facilities and in making optimum use of available land for sewage disposal purposes. The technical assistance will be limited to site evaluations, and consideration of the best type and location of disposal systems. Assistance will not include detailed soils investigations or preparation of plans and specifications, which areas are properly the domain of private consulting engineers.

3. Following issuance of the temporary pollution permits, the Department will remove the project from the project priority list and the NEEDS list.

Attachment B

Department's Evaluation of High User Cost Projects

Option #1. The first general option open to the Department is to continue with the current program using existing provisions of the priority system to bypass communities which fail to authorize bonding for the required local share. Such communities will be repeatedly bypassed in years ahead until additional funding reduces user cost to acceptable levels. Enforcement actions could be initiated, however, the fundamental high user cost problem would remain and thus enforcement does not appear an effective or equitable course of action. Continued bypassing of high user cost communities would necessitate having alternative standby projects ready to receive federal and State grants, in lieu of higher priority bypassed projects, to insure timely obligation of federal allotments. Insuring the readiness of standby projects requires liberalized use of planning advance funds. This option fails to provide any solution to the high user cost problem and fails to provide for any reduction in health hazards or pollution while bypassed communities wait for other funding sources to materialize . The Department has rejected this option.

Option #2. The second general option is to undertake an orderly sorting out of projects with well defined problems which must unavoidably incur excessive user costs from those other projects having well defined problems and reasonable user costs. The former category of projects would be set upon a path of phased attainment of water quality standards. The first phase, implemented upon designation and issuance of a temporary pollution permit authorized by 10 V.S.A., Chapter 47, would eliminate health hazards and make substantial progress toward achievement of water quality standards. Subsequent phases would be undertaken as opportunities arise to implement them at reasonable user cost.

Projects designated for phased attainment of water quality standards would be placed in a special priority category to be created in the priority system which would permit them to be automatically bypassed each year and also to be automatically restored for priority funding should additional grant funds become available which would lower user costs. For example, enactment and funding of a federal public works employment act which authorized those funds to be used as local monies to match other federal grants would automatically qualify a designated community to priority funding with State and federal pollution control construction grants, provided that community was the highest priority project ready to proceed to construction. Creation of this special category of projects will require amendment to the pollution control project priority system, however, such amended priority system could be in place in the Fall/Winter of 1983.

Municipalities designated for phased attainment of water quality standards may undertake first phase actions which are eligible for either or both federal and State construction grants as now conceived in statute. Where this case arises, the first phase project would be funded in its priority order and a temporary pollution permit would be issued requiring construction of subsequent phases in the future when available funding reduces user charges to levels considered realistic at that time. Where first phase actions are not grant eligible, the temporary pollution permit would order prompt construction of needed facilities with local funds. Generally, one to two construction seasons would be authorized for such work.

The first phase actions contemplated here would include, but not be limited to a) construction of individual wedge type systems which allow for the percolation of septic tank effluent through fill material to a ditch or stream, thus providing health hazard and pollution reductions; b) the filling in of drainage ditches carrying septic tank effluent or raw sewage with sand or gravel to reduce or eliminate human contact, insect growth, nuisance odors and to provide some added treatment prior to effluent release to a stream; c) construction of a minimum secondary treatment plant and minimum collection sewers, leaving known but distant areas of pollution to be sewered at a future date while reducing their intensity by measures described in a) & b) above; or d) providing primary treatment and disinfection, leaving secondary or advanced waste treatment for subsequent phases. The details of any first phase project would be developed specifically for a community with the objective of abating health hazards and reducing pollution at a reasonable user cost.

The sorting out of high user cost projects for a program of phased attainment of water quality standards will be undertaken in the manner described below.

Evaluation of Projects for Phased Attainment of Water Quality Standards

STEP I The Department will first determine the number of system users, from either engineering reports or actual user counts, and will also determine the anticipated local share of construction and yearly operations & maintenance cost. The user cost derived from this figure will be evaluated, along with other factors such as median family income of the municipality and whether or not a bond vote for the project has been passed. Based on this information, the Department will decide whether or not there is a reasonable chance of receiving voter approval.

The Department will also evaluate the severity of current health hazards and pollution of the receiving stream which cannot be allowed to continue for any length of time. (This will rarely be the case, but must be considered.) If the Department determines that the project is likely to receive voter approval or if the severity of existing health hazards and pollution is such that interim actions or a plan of phased actions will not significantly reduce the problems to acceptable levels, then the Department will proceed with Step II (below). If the user cost is so high that voter approval is unlikely and if a phased approach to pollution and health hazard abatement will effectively eliminate health hazards and reduce pollution, then the Department will proceed with Step III below.

STEP II The Department will continue to place the project on the priority list for the earliest possible funding, ensure that the schedule in the temporary pollution permit is consistent with the priority list, and take such actions as are necessary to insure the project is constructed.

STEP III The Department will meet with the municipality to discuss the project, including high user cost, possible interim and phased corrective actions, and probable citizen reaction. If the municipality and the Department agree that it is unlikely the project would receive voter approval in the near future, then extension of the temporary pollution permit and evaluation of interim/phased corrective measures shall be instituted. The evaluation and recommendation of interim corrective measures may be done by the Department, or the work may be done by a consulting engineer under a planning advance to the municipality. Following these studies, the Department will determine which interim corrective measures must be taken as a first phase project, and which can be taken in subsequent phases, will revise the temporary pollution permit to require these actions together with an appropriate schedule, generally allowing one or two construction seasons for implementation. New connections to any municipal sewerage system would be approved consistent with the Department's connection policy.

STEP IV The Department and municipality will periodically review the feasibility of the remaining corrective actions, resultant water quality, and the possibility of other sources of funding in order to construct the full project. Other sources of funding may include federal job related programs, FmHA loans, etc.

Attachment C

TITLE 10 V.S.A.

Chapter 55. AID TO MUNICIPALITIES FOR WATER SUPPLY, POLLUTION ABATEMENT AND SEWER SEPARATION

Subchapter 1. General Provisions

§ 1571. DEFINITIONS

As used in this chapter:

(1) "Agency" means agency of environmental conservation.

(2) "Board" means the water resources board.

(3) "Combined sewer separation facilities" means sewers, pipe lines, pumps, structures and attendant facilities necessary to convey liquid wastes in such a manner that industrial wastes, domestic sewage, or both, are conveyed separately from storm water, and may include storm water treatment facilities.

(4) "Department" means the department of water resources and environmental engineering.

(5) "Municipality" means a municipality as defined in section 126 of title 1.

(6) "Pollution abatement facilities" means municipal sewage treatment plants, pumping stations, interceptor and outfall sewers, and attendant facilities as prescribed by the department to abate pollution of the waters of the state.

(7) "Potable water supply facilities" means municipal water sources, water treatment plants, structures, pipe lines, storage facilities, pumps and attendant facilities necessary to develop a source of water, and to treat and convey it in proper quantity and quality for public use within a municipality.

(8) "Secretary" means the secretary of the agency of environmental conservation.

-- Added 1971, No. 97, §3, eff. April 22, 1971; amended 1982, No. 222, §30, eff. July 1, 1982.

§ 1572. COORDINATED PLAN REVIEW

The department is designated the principal agency of the state to review and approve potable water supply projects funded under this chapter. The department of health and any other state agency with a statutory responsibility to review such projects shall within thirty days of receipt of documents for review, advise the department of their comments, which the department shall resolve into a single state position to be transmitted to the applicant. Reviews of projects pursuant to chapter 151 of this title shall be exempt from the coordinated plan of review required by this section. -- Added 1979, No. 33; amended 1982, No. 222, §30, eff. July 1, 1982.

Subchapter 2. Engineering Planning Advance

§ 1591. PLANNING

(a) Planning advance. A municipality or a combination of two or more municipalities desiring an advance of funds for the development of engineering plans for potable water supply facilities or improvements, or for water pollution abatement facilities or improvements, or for combined sewer separation facilities, as the case may be, may apply to the department for an advance under this chapter. Engineering plans may include source exploration, surveys, reports, designs, plans, specifications or other engineering services necessary in preparation for construction of the types of facilities referred to in this section.

(b) The department with the approval of the secretary, may use up to ten percent of the funds provided under section 1596 of this title to undertake "regional" engineering-planning and process research. -- Added 1971, No. 97, §3, eff. April 22, 1971; amended 1971, No. 255 (Adj. Sess.), §7, eff. April 11, 1972; 1982, No. 222, §31, eff. July 1, 1982.

§ 1592. APPLICATION

The application shall be supported by data covering:

(1) A description of the project;

(2) A description of the engineering service to be performed;

(3) An explanation of the need for the project;

(4) An estimate of the cost of the project;

(5) The amount of advance requested;

(6) A schedule for project implementation;

(7) Such other information and assurances as the department may require.

-- Added 1971, No. 97, §3, eff. April 22, 1971.

§ 1593. AWARD OF ADVANCE

(a) The department may award an advance in an amount determined by the department to be suitable for the engineering planning under standards established by the department:

(1) For planning of potable water supply facilities, when it finds the same to be necessary in order to preserve or enhance the quality of water provided to the inhabitants of the municipality, or to alleviate an adverse public health condition, or to allow for orderly development and growth of the municipality;

(2) For planning of pollution abatement facilities, in order to enable a municipality to comply with water quality standards established under chapter 47 of this title;

(3) For the planning of combined sewer separation facilities, when it finds the same to be necessary to allow improvement of the quality of the receiving water in order that increased legitimate water uses and recreational potential in the best of the public can be realized;

(b) The department shall award an advance for planning under this section only when it finds:

(1) That the cost of the project is reasonable for its intended purpose, and

(2) That local funds are not readily available for the planning, and funds are not readily available through other established planning and design programs. -- Added 1971, No. 97, §3, eff. April 22, 1971.

§ 1594. PAYMENT OF AWARDS

On receipt of the engineering planning documents and their approval by the department, the department shall certify the award to the commissioner of finance who shall issue his warrant for payment thereof from the construction grant funds available to the department. The department may direct the commissioner to issue his warrant for partial payments of the award upon receipt and approval of portions of the total engineering work to be performed under the advance, or at other times deemed proper by the department. -- Added 1971, No. 97, §3, eff. April 22, 1971.

§ 1595. REPAYMENT OF ADVANCES

Advances under this subchapter shall be repaid when construction of the facilities or any portion thereof is undertaken. Where a construction grant is made by the department for the project, the amount of the outstanding advances shall be retained from the first payment of the grant funds. In other instances, if repayment is not made within 60 days upon demand by the department, the sum shall bear interest at the rate of 6 per cent per annum from the date payment is demanded by the department to the date of payment by the municipality. -- Added 1971, No. 97, §3, eff. April 22, 1971.

§ 1596. Repealed. 1982, No. 222, §32, eff. July 1, 1982.

§ 1597. Repealed. 1982, No. 222, §32, eff. July 1, 1982.

§ 1598. Repealed. 1982, No. 222, §32, eff. July 1, 1982.

Subchapter 3. Construction Grants-In-Aid

§ 1621. GRANTS-IN-AID

A municipality which desires a state assistance grant for construction, improvement or expansion of potable water supply facilities, water pollution abatement facilities, or combined sewer separation facilities, may make application to the department in accordance with this subchapter. -- Added 1971, No. 97, §3, eff. April 22, 1971.

§ 1622. ELIGIBLE PROJECTS

For the purposes of this subchapter, eligible project costs shall include:

(1) In the case of potable water supply projects, the costs of development of water sources, treatment facilities, pumping and storage facilities, the main transmission system to the center of the populated area, and attendant facilities determined necessary by the department, and may include engineering costs, and up to a $3,000.00 grant allowance for administrative and legal costs relating to the project but shall exclude all costs of land and easements required for the project and legal and administrative costs incident thereto.

(2) (A) In the case of water pollution abatement projects, the cost of sewage treatment plants, outfall sewers, interceptor sewers, pumping or lift stations, overflow control structures and attendant facilities determined necessary by the department and such other sewers necessary for federal aid requirements, and may include engineering costs, up to a

$3,000.00 grant allowance for administrative and legal costs relating to the project, but shall exclude all costs of land and easements required for the project and legal and administrative costs incident thereto which are not eligible for federal assistance.

(B) In the case of water pollution abatement projects utilizing innovative or alternative processes or techniques and determined eligible for federal grants under section 201(g)(5) of P.L. 92-500, and its subsequent amendment, the cost of building, acquisition, alteration, remodeling, improvement or extension of treatment works and may include engineering costs, and up to a $3,000.00 grant allowance for administrative and legal costs relating to the project, but shall exclude all costs of land and easements required for the project and legal and administrative costs incident thereto which are not eligible for federal assistance.

(C) In the case of water pollution abatement projects utilizing privately owned treatment works serving one or more residences or small commercial establishments, and determined eligible for federal grant assistance under section 201(h) of P.L. 92-500, and its subsequent amendment, the cost of building, acquisition, alteration, and up to a $3,000.00 grant allowance for administrative and legal costs relating to the project, but shall exclude all costs of land and easements required for the project and legal and administrative costs incident thereto which are not eligible for federal assistance.

(3) In the case of combined sewer separation projects, the cost of combined sewer separation facilities, storm water treatment facilities, and attendant facilities determined necessary by the department, and may include engineering costs, and up to a $3,000.00 grant allowance for administrative and legal costs relating to the project, but shall exclude all costs of land and easements required for the project and legal and administrative costs incident thereto.

(4) All water pollution abatement projects shall be in conformance with the provisions of chapter 151 of Title 10. -- Added 1971, No. 97, §3, eff. April 22, 1971; 1972, No. 255 (Adj. Sess.), §8, eff. April 11, 1972; amended 1973, No. 112, §1, eff. April 25, 1973; Added 1977, No. 241 (Adj. Sess.), §2, eff. April 17, 1978.

§ 1623. APPLICATION

A municipality which has voted funds in a specific amount to construct a facility as described in section 1622 of this title, at a meeting duly warned for that purpose, which desires to avail itself of state aid funds under this subchapter, shall apply for such funds in writing to the department in a manner prescribed by the department. Municipalities whose water pollution abatement facilities have been previously constructed and which meet the permit requirements established under chapter 47 of this title may make application for state aid funds without further vote of the municipality:

(1) if the local share of the project costs are formally authorized by the municipal officials from funds available to them, or

(2) if the project is to construct facilities to remove phosphorus to a level of 1 milligram per liter,

(3) and provided the project meets all other requirements of the department. -- Added 1971, No. 97, §3, eff. April 22, 1971; Amended 1971, No. 255 (Adj. Sess.), §9, eff. April 11, 1972; 1973, No. 112, §2, eff. April 25, 1973.

§ 1625. AWARDS FOR POLLUTION ABATEMENT PROJECTS

(a) When the department finds that a proposed water pollution abatement project is necessary, and that the proposed type, kind, quality, size and estimated cost including operation cost and sewage disposal charges, of the project are suitable for abatement of pollution from sources existing on October 18, 1972, and the project or the prescribed project phases are [is] necessary to meet the intent of the water quality classifications established by the board or by statute under chapter 47 of this title, the department may award to municipalities a state assistance grant of up to 25 [35] percent of the eligible project cost for projects not having completed construction on the date of passage of this act, provided that in no case shall the total of the state and federal grants exceed 90 percent of the eligible project costs:

(1) except that the total of state and federal grants may be equal 100 percent of the costs of equipment and facilities necessary for the removal of phosphorus to a level of 1 milligram per liter and below, and

(2) except that the 90 percent limitation shall not apply when the municipality provides, as their local share, federal funds allocated to them for the purpose of matching other federal grant programs having a matching requirement, and

[(3) except that such additional amounts up to 35 percent of the eligible construction costs may be awarded as are sufficient to insure the annual per family unit or its equivalent sewer service charge, as determined by the department, does not exceed $150.00 when the reasonable cost of operating the facility annually, as determined by the department, is added to the annual amortization cost of the locally funded share of the capital costs when such amortization cost is computed for a 20-year period at a 5 percent interest rate. Operating costs will include salaries, and fringe benefits directly involved with the maintenance of the facilities, together with the cost of contract repairs, chemicals, utilities, replacement parts and expandables, and]

(3) [(4)] except that the total of state and federal grants issued under P.L. 92-500 section 202(a)(2) may equal 94 percent of the eligible costs for innovative or alternative wastewater treatment processes and techniques, and

(4) [(5)] except that the total state and federal grants may equal up to 100 percent of the cost determined by the department to be incurred to protect a natural resource under abnormal and unique circumstances.

(b) In carrying out the purposes of this section, the department shall define the purpose and scope of an eligible project, including a determination of the area to be served, type of treatment, the phasing of construction effluent limitations, eligible construction costs, cost accounting procedures and methods and other such project construction, operation and fiscal elements necessary to meet federal aid requirements.[to include the requirement that industrial users of municipal treatment works pay as a portion of their sewage disposal charges the cost of construction of such industrial wastes to the extent attributable to the federal share of the construction costs.] -- Added 1971, No. 97, §3, eff. April 22, 1971; Amended 1973, No. 36, eff. April 3, 1973; No. 112, §7, eff. April 25, 1973. Limitation of awards, 1971 No. 97, §4, provided: "Awards authorized under subsection 1235(b) of this chapter may be made until June 30, 1973. Noted. This section was formerly set out as §1235; Amended

1977, No. 39, §4, eff. April 19, 1977, No. 241 (Adj. Sess.), §1, eff. April 17, 1978.

§ 1626. AWARDS FOR COMBINED SEWER SEPARATION PROJECTS

When the department finds that a proposed combined sewer separation project is necessary and the proposed type, kind, quality, size and estimated cost of the project are suitable for the purpose, and that the construction of the project will provide significant enhancement of the quality of the waters of the state by increasing proper legitimate water uses and recreational potential in the best interests of the public, the department may award a state assistance grant of up to 50 percent of the eligible project costs as determined by the department. -- Added 1971, No. 97, §3, eff. April 22, 1971; Amended 1982, No. 222, §33, eff. July 1, 1982.

§ 1627. PAYMENT OF AWARDS

Upon satisfactory proof that the project for which an award has been made is under construction, the department shall certify 90 percent of the award to the commissioner of finance who shall issue his warrant for payment. After the construction has been completed, and its cost audited by the department, the department shall certify the remainder of the award to the commissioner of finance who shall issue his warrant for payment. -- Added 1971, No. 97, §3, eff. April 22, 1971; Amended 1977, No. 39, §4, eff. April 19, 1977.

Subchapter 4. Priority System, Regulations, Appeals and Transfer of Funds

§ 1628. PRIORITIES

The department shall make awards under this chapter to eligible municipal projects on the basis of urgency of need as determined according to a system of priorities adopted by the department and to the extent appropriate funds are available. The total amount of the engineering planning advances made and still outstanding during a period for this purpose shall not exceed 30 percent of the bond issue or appropriation voted for construction grant funds by the general assembly for the period in which the award is made. -- Added 1971, No. 97, §3, eff. April 22, 1971; Amended 1982, No. 222, §35, eff. July 1, 1982.

§ 1629. APPEAL

Any municipality aggrieved by an act or decision of the department in establishing the priority system and the priority of awards to projects under this chapter may appeal to the board within 30 days. The board shall hold a hearing at which all persons and parties in interest may appear and be heard to determine whether the decision of the department complies with the priority system adopted pursuant to section 1628. The board shall issue an order affirming, reversing or modifying the decision of the department. The order shall be binding upon the department. An appeal filed pursuant to this section shall not stay the effectiveness of any decision of the department pending determination by the board. Appeals from the decisions of the board shall be taken de novo to the superior court. -- Added 1971, No. 97, §3, eff. April 22, 1971; Amended 1982, No. 222, §36, eff. July 1, 1982.

§ 1630. REGULATIONS

The department with the approval of the secretary shall adopt regulations consistent with this subchapter as it finds necessary for proper administration of the subchapter. -- Added 1971, No. 97, §3, eff. April 22, 1971.

§ 1631. TRANSFER OF FUNDS

The commissioner of the department with the approval of the secretary of the agency of environmental conservation, the secretary of the agency of administration and the emergency board, may transfer any unexpended balance of funds between a municipal pollution control or water supply planning or construction and storm water separation project authorized under this chapter if, in his judgment, financial or economic conditions are such that the best interests of the state would be served thereby. -- Added 1975, No. 254 (Adj. Sess.), §139; Amended 1982, No. 222, §37, eff. July 1, 1982.

Subchapter 5. Technical and Other Services to Municipality

§ 1650. DEPARTMENT ACTING ON BEHALF OF MUNICIPALITY

Any municipality may request the department to act in its behalf in undertaking the planning and construction of facilities described in this chapter. -- Added 1971, No. 97, §3, eff. April 22, 1971; Amended 1982, No. 222, §39, eff. July 1, 1982.

§ 1651. APPLICATION FOR ASSISTANCE

When the voters of the municipality at a duly warned meeting have authorized the proper officials of the municipality to make application to and to enter into a contract with the department for specific engineering and technical services, the municipality pursuant to a written application to the department submitted in a form prescribed by the department may enter into a contract with the department under this subchapter. -- Added 1971, No. 97, §3, eff. April 22, 1971.

§ 1652. CONTRACTS

Upon approval of the application, the department shall prepare and offer to the municipality a contract for services requested, which shall include such terms and conditions as the department determines to be reasonable, including but not limited to reimbursement of all costs of such services. -- Added 1971, No. 97, §3, eff. April 22, 1971.

§ 1653. ELIGIBILITY

For the purposes of this subchapter the department, when acting on behalf of a municipality, is an eligible applicant for funds available under this chapter. Eligible planning and construction costs shall include the cost to the department of undertaking these services on behalf of the

municipality; however, in no case shall the department administration charges exceed two percent of the project cost. Nothing in this subchapter shall relieve a municipality of its duty to provide the land required for the project or to contribute funds toward the cost of the project as otherwise required by law. -- Added 1971, No. 97, §3, eff. April 22, 1971; Amended 1982, No. 222, §40, eff. July 1, 1982.

State of Vermont

AGENCY OF ENVIRONMENTAL CONSERVATION

Montpelier, Vermont 05602
Department of Water Resources
and
Environmental Engineering

Department of Fish and Game
Department of Forests, Parks, and Recreation
Department of Water Resources & Environmental Engineering
Natural Resources Conservation Council

April 2, 1984

Mr. George F. Ames
Acting Chief
Policy & Guidance Branch
Office of Water Program Operations
Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

RECEIVED
FRD
APR 6 1984

Re: EPA Study on Strategies for Federal Assistan in the Municipal Wastewater Treatment Program

Dear Mr. Ames:

This paper is submitted by the State of Vermont, Department of Water Resources and Enviornmental Engineering, in response to your call for papers and comments contained in the February 16th Federal Register.

This paper evaluates the impact of the December 1981 amendments to the Clean Water Act on Vermont municipal wastewater treatment projects, and proposes changes to the federal statutes which would keep the user costs in small town, high cost projects within reasonable limits.

While these exact proposals may not resolve funding problems in all of the other states, we strongly feel that changes similar to these will be necessary if we are to fulfill the national commitment to clean waters. Without such action, many small communities will be economically unable to construct and maintain the treatment facilities necessary to abate existing sources of pollution.

I or my staff would be happy to discuss this report and any of its background documentation with your people. If we can be of any further assistance, please feel free to give us a call.

In addition we forward a copy of "State Water Pollution Control Grant Program Funding Analysis" dated Apri, 1983. This document was prepared to assist the State executive and legislative branches in adjusting the state grant program in response to the 1981 Amendments to the Clean Water Act.

Sincerely,

John R. Ponsetto
Commissioner

JRP:arm
Enc: as noted above

POTW FUNDING STUDY

EXECUTIVE SUMMARY

This report is prepared in response to the EPA request for papers directed to the organization of the federal municipal construction grant program after the FY 85 re-authorization of the Federal Clean Water Act. The State of Vermont is principally concerned with the completion of its municipal pollution control program in the 49 remaining projects. These small towns will require the continued financial assistance offered by the Clean Water Act to assure locally acceptable annual user costs. Absent that assurance, the remaining projects will fail for lack of local support.

Vermont communities requiring further work to comply with the Clean Water Act, fall into two general categories being a) those towns which are adding to or modifying an existing central collection and treatment system (33 projects totalling $59 million - CATEGORY I); and b) those towns which must build a new original central collection and treatment system (16 projects totalling $49 million - CATEGORY II & III). The latter are small towns generally under 3,000 people and serving 400 or fewer equivalent family units. These towns have median family and median household incomes slightly above the state average of $17,206 and $14,791 respectively. Towns requiring new original systems can again be divided into those for which sufficient recent study has been completed to clearly support the need for a central system (CATEGORY II), and those which are believed to need a central system but for which additional study is required prior to adopting a capital intensive project (CATEGORY III). The latter group may be capable of compliance with the Act through the use of on-site septic tanks and leachfields, innovative or alternative systems, or by the use of uniquely designed soil systems adapted to the specific site constraints.

The remaining projects require financial assistance. Absent any grants, the annual user cost of Category I projects would average $380 or 1.34% of the Median Family Income (MFI). Category II projects would average $1,255 or 4.61% MFI. Category III projects average $2,556 or 8.32% MFI. With only state grant assistance, the annual user cost would decrease to $304 in Category I, $986 in Category II and $1,968 in Category III, being respectively 1.07%, 3.62% and 6.41% of the MFI. While Category I projects are generally viable with only state grants, the remaining projects are clearly too costly per user to expect local support. State grant funding cannot be expected to expand beyond its current level since the annual capital appropriation requirement supporting a 25% grant is about $5 million out of a total state capital budget of $20 million, or 25% of the total appropriation. The Department does not believe that appropriations in excess of that amount can be reasonably expected. At appropriation levels above 25%, the pollution control demand for funds would begin to make undue intrusions into the legitimate state needs for schools, roads, water systems, etc.

What is the appropriate continuing level of federal financial assistance which will assure completion of the program? The current fixed 55% federal grant level applied to the reduced scope of eligible project costs, in combination with the Vermont 25% grants is adequate to insure completion of the Category I projects, which projects would realize user costs averaging $142 at a 0.49% MFI. This program, however, is not

adequate to assure the completion of the Category II and III projects which would have average user costs of $428 and $732 or 1.56% and 2.41% of the MFI. Additional financial assistance is needed by these small towns requiring original systems to reduce the user cost to acceptable levels.

The additional funds could be provided in the form of a variable percentage federal grant to small towns with high user cost (user costs over 1.5% MFI). A grant program of this type would increase the federal grant to a maximum value of the federal eligible cost less any state grant assistance applicable to those costs, and would be increased only to that amount required to reduce the user cost to 1.5% MFI. Such a program would effectively reduce user costs to acceptable levels in both Category II and III. Five (9) of 9 projects in Category II would receive the extra grant and would realize actual user costs of 1.5% MFI. Five (5) of the 7 Category III projects would also receive variable percentage grants. The actual grant award percentage would range from 55.2% to 71% in both categories and would require increased funds in the amount of $2.8 million in addition to the $25.9 million required to support the 55% federal base grant. That represents an 11% increase in the current authorization and appropriation levels, which increase does not seem excessive or unattainable.

The funds to support the extra grant program could also be obtained by reducing or eliminating the federal grants on projects which would realize annual user costs of less than 0.5% MFI when computed absent any federal grant funding. The type of projects subject to this action are AWT (phosphorus removal) additions to existing secondary plants. A program reduction of this type would save $3.1 million in grant awards from Category I and II projects, which represents a rough balancing of funds with the extra grants needed to reduce the user costs in small towns. It is important to note that the towns which are losing federal grants are probably carrying some unretired debt cost from construction of the original facilities as well as the O & M cost of the existing system, which costs have not been considered in the computation.

The study also evaluated change of the grant program to a loan or combined grant and loan program. A loan program which extended the entire local cost (total project cost less tate grants) to the towns at 0% interest and 30 year payback would not generate local user costs low enough in Category II and III to assure local support. A substantial increase in federal dollar outlays would also be needed $81 million for loans against $57 million for grants).

A combination grant and loan program which extended 0% interest 30 year loans to all towns in an amount equal to the total project cost less the base federal and state grants, would effectively reduce user costs in Category II and III but would require funding in the amount of $24 million in addition to the $57 million for grants. It does appear likely that authorization or appropriation levels would be increased by that amount and funding of this magnitude could not be obtained by reductions in other areas of the grant program.

The financial exposure of combined grant and loan program could be sharply reduced by limiting the loans to only those projects that would realize annual user cost over 1.5% MFI with the 55% federal and 25% state

grant. This would target the favorable loans to the small high user cost towns. Annual user costs would be effectively reduced and the funding support required would be $6.5 million in addition to the base grant requirement of $57 million. That additonal sum could be obtained with a modest increas in authorization and appropriation levels or by the elimination of federal grants to lower user cost towns described above.

Some consideration has been given to an alternative program that would provide for the repayment of the above loans to the states, which funds would be subsequently used to support future pollution control projects. Two factors must exist for this to be successful. First, the user cost in the initially supported project must be low enough to gain local support and secondly, the volume of the returned funds must be sufficient to provide reasonable working capital. Those two conditions did not co-exist in the alternatives studied.

RECOMMENDATIONS

1. That re-authorization of the Clean Water Act provide for increased authorization and appropriation levels to fund grant increases to small high user cost towns which would experience annual user costs over 1½% Median Family Income (MFI) when receiving a base 55% federal grant and a 25% state grant.

a) The state could elect uniform grant percentages to be applied to the high user cost projects.

b) The maximum federal grant could not exceed 75% of the federally eligible costs, or that grant level which would reduce the annual user cost to 1½% MFI.

2. That states be allowed to alter the federal grant percentage on a determination of the governor, similar to a governor's determination to apply federal grant funding to collection sewers.

3. As an alternative to the above, the state on determination of a governor, be allowed to reduce or eliminate grant funding to low user cost projects and increase grant funding on high user cost projects.

4. The mandatory set-asides for small towns, innovative and alternative be amended to be discretionary.

5. Allow the phasing of small town high user cost projects on discretion of the state where the first phase project would eliminate health hazards, make substantial progress toward achieving water quality standards, and generate annual user costs of 1.5% MFI. Later phases to be undertaken at a future time as prescribed in the Municipal Compliance Plan of the National Municipal Policy.

PURPOSE OF THE STUDY

This study was undertaken in response to EPA's request for papers proposing how the federal grant program assisting POTW construction, should continue following re-authorization of the grant program beyond Fiscal Year 1985. The December 1981 amendments to the Clean Water Act reduced the federal grant percentage from 75% to 55% while simultaneously excluding reserve capacity and collection sewers from grant eligibility. Collection sewers could be grant eligible upon a governor's designation, using up to 20% of a state's allotment. Together, these changes sharply reduced the federal funding available to small towns, requiring new original treatment plants and collection/interceptor sewers.

The State of Vermont undertook to adjust its grant program in response to these amendments and much of the information presented and used herein was drawn from studies originally supporting that effort. Vermont's remaining municipal projects are mostly small rural towns and, therefore, the principal program and funding problems addressed herein relate to small towns.

The projects identified in this study are the remaining towns in Vermont which require new, original sewerage systems, AWT additions to existing plants, improvements to older secondary plants to meet the current definition of secondary treatment, or sewer extensions to eliminate significant pollution sources. These projects are planned to be built within the next ten years, and when complete, will represent substantial completion of all municipal pollution control work in Vermont. While there are additional projects identified on the NEEDS survey, those projects are generally planned for construction ten or more years hence, and address the correction of problems of a less intense nature such as combined sewer separation and storm water treatment.

This report deals with the feasibility of continuing the Clean Water Act municipal construction grant program as a grant program capable of reducing high user cost in small town projects and secondly, as a loan program wherein the loans extended by the U.S. Environmental Protection Agency would be repaid back to the state to build a reservoir of capital for future pollution control works. The following analysis has expanded beyond the bounds established in EPA's call for papers; however, it addresses the problems of completing the remaining municipal pollution control projects in what we believe to be a programatic manner.

A brief mention should be made of the data used in preparation of this report. Project costs are drawn from the most recent department file information and inflated at 5% annually to the expected year of grant award. O & M cost data is also the most recent estimate available and inflated at 5% annually to the expected year of grant award. Where comparisons are used against Median Family Income and Median Household Income, this data has been drawn from the 1980 census (1979 income data) and inflated at 5% annually to the grant award date.

SCOPE OF REMAINING WORK IN VERMONT

There are 39 projects which remain to be completed in Vermont's municipal pollution control program. They are shown on Table C-1 together with a brief description and project cost data. The projects have been organized into three groupings.

Category I includes 23 projects which upgrade primary plants to secondary or AWT, the addition of AWT components to existing secondary plants, or improvements to existing secondary plants to insure compliance with secondary treatment standards, and certain sewer extensions.

Category II projects include small towns requiring an original secondary treatment plant, interceptors and collectors. These projects have well defined problems which will require central collection and treatment to achieve water quality standards and to abate local health hazard conditions that may exist. Average income levels are slightly above state-wide averages.

Category III projects include small towns which appear to require an original secondary treatment plant, interceptors and collectors. With further study, these projects may be able to use individual septic tank/leachfields or alternatively, further study may reveal that the overall cost of a central collection and treatment system is not a justifiable expense compared to the resulting pollution/health hazard abatement, and that a more realistic solution may be to use individual septic tanks and leachfields which do not fully meet modern design standards or which may be modified to fit unique site conditions. These projects require further study before adopting a capital intensive solution. Average income levels are slightly above state-wide averages.

Category I projects differ from Category II & III in that they do not envision the construction of new original treatment facilities, interceptors and collectors simultaneously. All of these towns have existing interceptor and collector sewers and treatment plants. Nine (9) of the 23 projects upgrade primary plants to secondary or AWT levels of treatment, 8 of 23 add phosphorus removal to existing secondary plants and 6 projects are sewer extensions or improvements to secondary treatment plants to insure compliance with regulatory secondary treatment standards. In general, these communities have higher income levels than Category II & III, have more densely developed service area and a larger population over which to distribute capital costs.

The anticipated average annual user cost for these projects is $147 with a high of $277 and a low of $4. Continuation of the current federal grant program together with the Vermont 25% grant will provide sufficient assistance for these projects to be completed at acceptable local cost levels.

CATEGORY I

TABLE C-1

Project	Equiv. Users	Median Family Income	Median House. Income	Funded From FY	Total Project Cost	Annual O&M	Annual User Cost 30 yr - 10%	Project Description
State Average		(17,206)	(14,791)					
Barre Town	1,170	20,126	17,919	87	4,794,285	116,000	186.08	Sewer connection to an existing secondary plant.
Bellows Falls	1,469	16,750	11,903	88	4,479,475	95,160	149.80	Upgrade primary to secondary.
Burlington City	12,000	18,560	13,048	86	1,507,937	343,970	31.33	Upgrade secondary to AWT - phosphorus.
Burlington City, Flynn	12,000	18,560	13,048	87	1,787,182	13,920	4.31	Sewer extension.
Castleton	600	16,658	14,276	88	3,583,580	12,200	147.04	Sewer extension.
Colchester F.D. #1	576	19,945	18,232	86	347,997	80,734	75.24	Upgrade secondary to AWT - phosphorus.
Dover	250	14,833	13,512	88	1,919,775	12,200	211.71	Sewer extension.
Fair Haven	725	16,733	14,828	90	1,656,726	64,320	128.43	Improvements to existing secondary.
Hartford - Wilder	535	18,284	15,821	88	2,047,760	11,580	130.78	Upgrade primary to secondary.
Hinesburg	700	17,295	16,312	90	1,409,980	60,300	128.87	Upgrade secondary to AWT - phosphorus.
Ludlow	1,160	15,919	13,396	90	2,255,968	73,700	115.43	Improvements to existing secondary.
Proctor	650	18,664	16,607	88	5,027,250	67,100	281.56	Upgrade primary to secondary.
Randolph	977	15,234	12,224	90	1,126,574	71,020	97.15	Improvements to existing secondary.
Rutland Town	190	22,569	21,071	85	1,492,907	21,000	277.22	Sewer connection to an existing secondary plant.
St. Johnsbury	2,336	16,867	13,372	89	9,156,944	277,760	203.74	Upgrade primary to secondary.
Shelburne F.D. #1	625	27,514	24,186	87	365,976	69,600	123.78	Upgrade secondary to AWT - phosphorus.
Shelburne F.D. #2	333	27,514	24,186	87	365,976	58,000	197.49	Upgrade secondary to AWT - phosphorus.
So. Burlington, Bartletts	1,083	25,070	21,715	87	365,976	87,000	87.50	Upgrade secondary to AWT - phosphrus.
So. Burlington, Airport	2,400	25,070	21,715	85	7,149,545	214,200	166.49	Upgrade primary to secondary w/AWT - phosphorus.
Swanton	1,083	16,985	14,361	87	1,036,932	139,200	148.84	Upgrade secondary to AWT - phosphorus.
Wilmington	500	15,308	12,979	90	1,304,774	41,540	166.24	Upgrade primary to secondary.
Windsor	1,515	17,058	15,207	89	4,823,676	147,200	175.03	Upgrade primary to secondary.
Winooski	2,114	16,206	12,699	86	695,994	100,100	54.33	Upgrade secondary to AWT - phosphorus.
Average —		19,036	16,197.70				142.97	

CONTINUATION OF FEDERAL GRANT PROGRAM

Is There a Need for Financial Assistance?

A threshold question posed by the current inquiry is whether or not there is a need for any financial assistance to communities to build needed pollution abatement facilities. Table F-1 is constructed under the assumption that local government will pay the total cost of these projects without state or federal assistance. The user costs have been computed assuming debt retirement in 30 years at 10% interest. This is the longest bonding period allowed under Vermont statute. Extending the bonding period would not significantly affect results.

Category I projects would be least impacted by such a program change. Eleven (11) of 23 projects would incur annual user costs of under $300; 2 projects between $300 and $400; and 10 projects over $400. Those projects with annual user charges exceeding $400 represent upgrades of existing primary treatment plants to secondary or AWT, or are for major sewer interceptor construction being undertaken to connect a town with an adjacent town's secondary plant. These are generally larger Vermont communities (although small by national standards) with little or no debt retirement remaining on existing facilities. User costs here are generally above $400/user/year and are at or above the ability of the local government to support without assistance. Projects costing less than $400/user/year are for improvements to existing secondary plants to meet current secondary treatment standards or for the addition of AWT (phosphorus removal) to existing plants. These communities have treatment and collection systems for which debt retirement generally has not been liquidated and the project user costs would be in addition to existing user costs. Within this group, only those projects which involve AWT (phosphorus) addition to secondary plants in the larger municipalities appear viable, absent state or federal aid.

Category II and III projects (small towns needing original central collection and treatment systems) are clearly an excessive financial burden to local government with annual user costs averaging over $1,000 in Category II and over $2,000 in Category III. This level of local economic effort would approximately double or more than double the total taxes paid by small town homeowners and consume between 5% and 9% of the Median Family Income and between 6% and 10% of the Median Household Income.

It is clear from the data above that financial assistance from higher tiers of government is a pre-requisite to completing the small town municipal pollution abatement projects currently identified. The recently initiated National Municipal Policy is predicated in part on the assumption that small towns can build identified pollution control projects without financial assistance. This is clearly not a probable outcome of that policy. Small towns needing original central collection and treatment will need financial assistance to complete those works.

CATEGORY II

Project	Equiv. Users	Median Family Income	Median House. Income	Funded From FY	Total Project Cost	Annual O&M	Annual User Cost 30 yr - 10%	Project Description
Bethel	408	14,806	12,654	87	3,914,860	58,000	368.72	New secondary, interceptors, collectors.
Cambridge	65	17,298	15,272	93	575,998	27,900	617.23	New secondary, interceptors, collectors.
Colchester Town	1,900	19,945	18,232	91	13,499,830	176,250	265.85	New secondary, interceptors, collectors.
Fairfield F.D. #1	43	15,577	14,779	90	1,022,998	13,400	816.37	New secondary, interceptors, collectors.
Jeffersonville	165	17,411	13,417	87	1,437,898	23,200	393.80	New secondary, interceptors, collectors.
St. Albans Town	125	18,812	16,969	92	1,297,998	29,600	457.10	Sewer connection to an existing secondary plant.
St. George	110	17,768	17,279	86	1,454,763	8,800	530.94	Septic tank leachfield, interceptors, collectors.
Sherburne	900	20,069	17,386	86	520,000	33,000	48.92	New secondary, interceptors, collectors.
Troy	98	13,472	12,130	87	2,283,690	34,800	358.62	New secondary, interceptors, collectors.
Average —		17,240	15,346.44				428.62	

CATEGORY III

Project	Equiv. Users	Median Family Income	Median House. Income	Funded From FY	Total Project Cost	Annual O&M	Annual User Cost 30 yr - 10%	Project Description
Barnet	43	13,505	12,418	92	1,642,989	14,800	1,281.01	New secondary, interceptors, collectors.
East Middlebury	250	19,145	15,736	93	10,902,668	31,000	1,137.11	Sewer connection to an existing secondary plant.
Fairlee	180	14,526	12,861	92	2,873,681	29,600	553.39	New secondary, interceptors, collectors.
Jericho	205	24,009	22,576	92	4,107,473	29,600	613.59	New secondary, interceptors, collectors.
Pawlet	50	14,853	13,157	87	805,147	9,280	569.94	New secondary, interceptors, collectors.
Townshend	100	14,423	11,481	92	1,568,689	29,600	664.96	New secondary, interceptors, collectors.
Underhill	300	23,547	22,296	94	2,625,880	57,050	305.07	New secondary, interceptors, collectors.
Average —		17,715	17,789.29				732.15	

TABLE F-1
NO STATE OR FEDERAL AID

Project	Total Project Cost	Annual User Cost: 30 yrs. 10% Capital	O&M	Total User Cost	User Cost as a Percent of MFI	MHI
CATEGORY I						
Barre Town	4,794,285	434	99	533	1.76	1.98
Bellows Falls	7,479,475	323	64	388	1.47	2.07
Burlington City	1,507,987	13	28	41	.15	.22
Burlington City, Flynn	1,787,182	15	1	16	.06	.08
Castleton	3,583,580	633	20	653	2.50	2.91
Colchester F.D. #1	347,997	64	62	126	.44	.48
Dover	1,919,775	814	48	863	3.70	4.06
Fair Haven	1,656,726	242	88	331	1.14	1.29
Hartford - Wilder	2,047,760	406	21	427	1.48	1.72
Hinesburg	1,409,980	213	86	299	1.00	1.06
Ludlow	2,255,968	206	63	269	.97	1.16
Proctor	5,027,250	820	103	923	3.15	3.54
Randolph	1,126.574	122	72	195	.73	.92
Rutland Town	1,492,907	833	110	944	3.07	3.29
St. Johnsbury	9,156,944	415	118	534	1.92	2.42
Shelburne F.D. #1	365,976	62	111	173	.42	.47
Shelburne F.D. #2	365,976	116	174	290	.70	.80
So. Burlington, Bartletts	365,976	35	80	116	.30	.35
So. Burlington, Airport	7,149,545	316	89	405	1.18	1.37
Swanton	1,036,932	101	128	230	.90	1.06
Wilmington	1,804,774	382	83	465	1.75	2.07
Windsor	4,823,676	337	97	434	1.54	1.73
Winooski	695,994	34	47	82	.35	.45
Average —		302	78	380	1.33	1.54
CATEGORY II						
Bethel	3,914,860	1,017	142	1,160	5.22	6.11
Cambridge	575,998	940	429	1,369	3.95	4.48
Colchester Town	13,499,830	753	92	846	2.33	2.55
Fairfield F.D. #1	1,022,998	2,523	311	2,835	10.52	11.08
Jeffersonville	1,437,898	924	140	1,065	4.07	5.29
St. Albans Town	1,297,998	1,101	236	1,338	3.72	4.12
St. George	1,454,763	1,402	80	1,482	5.87	6.04
Sherburne	520,000	61	36	97	.34	.39
Troy	2,283,690	969	139	1,108	5.48	6.09
Average —		1,077	178	1,255	4.61	5.13
CATEGORY III						
Barnet	1,642,989	4,053	344	4,397	17.04	18.54
East Middlebury	10,902,668	4,626	124	4,750	12.40	15.09
Fairlee	2,873,681	1,693	164	1,858	6.69	7.56
Jericho	4,107,473	2,125	144	2,269	4.94	5.26
Pawlet	805,147	1,708	185	1,893	8.50	9.59
Townshend	1,568,589	1,663	296	1,959	7.11	8.93
Underhill	2,801,372	574	190	764	1.53	1.62
Average —		2,349	206	2,556	8.32	9.51

To What Extent Can State Grant Programs Satisfy the Need for Small Town Capital Assistance?

Table F-2 shows the same computations as in Table F-1 except Vermont's 25% grant has been deducted from costs for which local government will bond. Category I projects as a whole again are least impacted. The Vermont municipalities upgrading existing primarys to secondary are most severely affected within that group with 5 of 9 projects showing user costs over $300 and 4 of 9 over $400.

Town	User Cost	% MFI	% MHI
Barre Town	425	1.40	1.58
Bellows Falls	307	1.16	1.64
Hartford-Wilder	326	1.13	1.31
Proctor	718	2.45	2.76
Rutland Town	735	2.39	2.57
St. Johnsbury	430	1.55	1.95
So. Burlington (Airport)	326	0.96	1.10
Wilmington	370	1.40	1.65
Windsor	350	1.24	1.39

The remaining Category I projects exhibit user costs from $38/user/year to $270/user/year, which by themselves, are within reasonable economic limits. These costs, however, will be added to existing user costs, the combination of which would frequently exceed the limits of local governmental project support.

Category II and III projects still have user costs will above any threshold of reasonable economic effort. User costs for Category II still average over $1,000/year and for Category III over $2,000/year. Local tax burdens would double or more than double with user charges of this magnitude. Cost would be between 4% and 7% of the Median Family Income and between 4% and 8% of the Median Household Income would be created by sewerage charges.

The next issue to consider is whether or not the level of state grant assistance could be increased. The basic Vermont state 25% grant generates an annual capital appropriation of approximately 5 million dollars. These appropriations are made in proportion to the federal construction grant allotment anticipated, which in recent years has been been 12 million annually or ½% of the national appropriation.

The total annual capital appropriation for the State of Vermont is approximately 20 million dollars. Therefore, approximately 25% of that is dedicated to municipal grants for pollution control. An annual 5 million appropriation also represents approximately $10 per capita annually over the state population. It is our judgement that the current level of effort by state government cannot be significantly expanded. To do so would unduly intrude on other reasonable and proper demands for state capital funds needed for roads, schools institutions, etc. It is interesting to note that the 25% state grant level was derived from a fundamental judgement as to how much of the state's capital budget could reasonably be anticipated on a continuing basis to provide grant assistance for municipal pollution control works. It should also be noted that in Vermont, the

annual appropriation for capital improvements is limited by statute to 90% of the capital bonds retired the previous year. This measure was taken to preserve the state's bond credit rating.

TABLE F-2
STATE GRANT ONLY

Project	State Grant	----- Annual User Cost ----- 30 yrs. 10% Capital	O&M	Total User Cost	% MFI	% MII
CATEGORY I						
Barre Town	1,198,571.30	326	99	425	1.40	1.58
Bellows Falls	1,119,868.80	242	64	307	1.16	1.64
Burlington City	376,996.75	9	28	38	.14	.20
Burlington City, Flynn	446,795.50	11	1	13	.04	.06
Castleton	895,895.00	475	20	495	1.89	2.21
Colchester F.D. #1	86,999.25	48	62	110	.39	.42
Dover	479,943.75	610	48	659	2.83	3.10
Fair Haven	248,508.90	181	88	270	.93	1.05
Hartford - Wilder	511,940.00	304	21	326	1.13	1.31
Hinesburg	352,495.00	160	86	246	.82	.87
Ludlow	563,992.00	154	63	218	.79	.94
Proctor	1,256,812.30	615	103	718	2.45	2.75
Randolph	281,643.25	91	72	164	.62	.77
Rutland Town	373,226.75	625	110	735	2.39	2.56
St. Johnsbury	2,289,235.50	311	118	430	1.54	1.95
Shelburne F.D. #1	91,494.00	46	111	157	.38	.43
Shelburne F.D. #2	91,494.00	87	174	261	.63	.72
So. Burlington, Bartletts	91,494.00	26	80	107	.28	.32
So. Burlington, Airport	1,787,386.00	237	89	326	.95	1.10
Swanton	259,233.00	76	128	204	.80	.95
Wilmington	451,193.50	287	83	370	1.39	1.64
Windsor	1,205,919.00	253	97	350	1.24	1.39
Winooski	173,998.50	26	47	73	.31	.41
Average —		226	78	304	1.07	1.23
Sum —	14,635,136.05					
CATEGORY II						
Bethel	978,714.75	763	142	905	4.07	4.77
Cambridge	143,999.25	705	429	1,134	3.27	3.71
Colchester Town	3,351,249.30	566	92	659	1.81	1.98
Fairfield F.D. #1	255,749.25	1,892	311	2,204	8.18	8.62
Jeffersonville	359,474.25	693	140	833	3.19	4.14
St. Albans Town	324,499.25	826	263	1,062	2.95	3.27
St. George	363,690.50	1,052	80	1,132	4.48	4.61
Sherburne	130,000.00	45	36	82	.28	.33
Troy	570,922.00	726	139	865	4.28	4.75
Average —		808	178	986	3.61	4.02
Sum —	6,478,298.55					
CATEGORY III						
Barnet	410,747.00	3,039	344	3,384	13.11	14.26
East Middlebury	2,725,667.00	3,469	124	3,593	9.38	11.41
Fairlee	718,420.25	1,270	164	1,434	5.17	5.84
Jericho	1,026,868.00	1,594	144	1,738	3.79	4.03
Pawlet	201,286.50	1,281	185	1,466	6.58	7.43
Townshend	392,147.25	1,247	296	1,543	5.60	7.04
Underhill	406,219.75	430	190	621	1.25	1.32
Average —		1,761	206	1,968	6.41	7.33
Sum —	5,881,355.75					

We conclude that state financial assistance could not be significantly expanded in Vermont and that a continued federal assistance program will be needed to complete the known municipal projects. While this conclusion may not hold valid for all states, it is our expectation that small rural states will be in substantially the same need of continued federal assistance.

What is the Appropriate Level of Federal Financial Assistance?

The study considered four variations of continuing federal financial assistance for municipal pollution control projects. They are:

1. A fixed percent federal grant applied to current eligible categories of work.

2. A fixed grant percentage applied to current eligible categories plus an increased federal grant to small high user cost towns to restore the annual user cost to an acceptable threshold.

3. A federal loan program which would provide low or no interest loans to cover local costs less state grants.

Fixed Federal Grant

The fixed federal grant program now authorized by the Clean Water Act, in combination with the existing state grant program, provides sufficient or more than sufficient grant funds to complete the projects in Category I and at user cost levels which will not impose excessive economic stress on those communities as shown in Table F-3. The annual user costs expected average $142 and represent 0.49% and 0.57% of the Median Family Income and the Median Household Income respectively. The nine towns upgrading primary plants to secondary exhibit acceptable user costs as shown below.

Project	User Cost	% MFI	% MHI
Barre Town	186	0.61	0.69
Bellows Falls	149	0.57	0.80
Hartford-Wilder	130	0.45	0.53
Proctor	281	0.96	1.08
Rutland Town	277	0.90	0.97
St. Johnsbury	203	0.73	0.92
So. Burlington (Airport)	166	0.48	0.56
Wilmington	166	0.62	0.74
Windsor	175	0.62	0.69
Average	192	0.66	0.77

The Category II projects remain subjected to excessive user charges averaging $428/year with a high of $816 to a low of $49 and being 1.55% and 1.74% of the Median Family Income and Median Household Income respectively. Category III projects also remain high averaging $732 and 2.41% and 2.75% of the Median Family Income and Median Household Income respectively.

TABLE F-3
55% FEDERAL & 25% STATE

Project	Federal Grant	State Grant	O&M	Capital	Total User Cost	% MFI	% MHI
			----- Annual User Cost -----				
CATEGORY I							
Barre Town	2,636,856.80	1,198,571.30	99	86	186	.00	.69
Bellows Falls	2,182,144.30	1,119,868.80	64	85	149	.00	.80
Burlington City	829,392.85	376,996.75	28	2	31	.00	.16
Burlington City, Flynn	982,950.10	446,795.50	1	3	4	.00	.02
Castleton	1,970,969.00	895,895.00	20	126	147	.00	.65
Colchester F.D. #1	191,398.35	86,999.25	62	12	75	.02	.29
Dover	1,055,876.30	479,943.75	48	162	211	.01	.99
Fair Haven	1,136,796.00	248,508.90	88	39	128	.00	.50
Hartford - Wilder	985,484.50	511,940.00	21	109	130	.00	.52
Hinesburg	775,489.00	352,495.00	86	42	128	.00	.45
Ludlow	1,124,459.10	563,992.00	63	51	115	.00	.49
Proctor	2,677,701.40	1,256,812.30	103	178	281	.00	1.07
Randolph	619,615.15	281,643.25	72	24	97	.00	.45
Rutland Town	821,098.85	373,226.75	110	166	277	.01	.96
St. Johnsbury	4,999,470.90	2,289,235.50	118	84	203	.00	.92
Shelburne F.D. #1	201,286.80	91,494.00	111	12	123	.03	.34
Shelburne F.D. #2	201,286.80	91,494.00	174	23	197	.05	.54
So. Burlington, Bartletts	201,286.80	91,494.00	80	7	87	.02	.26
So. Burlington, Airport	3,614,644.60	1,787,386.00	89	77	166	.00	.56
Swanton	570,312.60	259,233.00	128	20	148	.01	.69
Wilmington	961,606.25	451,193.50	83	83	166	.00	.74
Windsor	2,505,631.70	1,205,919.00	97	77	175	.00	.69
Winooski	382,796.70	173,998.50	47	6	54	.00	.30
Average —			78	64	142	.01	.57
Sum —	31,628,554.85	14,635,136.05					
CATEGORY II							
Bethel	2,064,734.10	978,714.75	142	226	368	.00	1.94
Cambridge	316,798.35	143,999.25	429	188	617	.10	2.02
Colchester Town	7,048,248.90	3,351,249.30	92	173	265	.00	.80
Fairfield F.D. #1	562,648.35	255,749.25	311	504	816	.07	3.19
Jeffersonville	684,583.90	359,474.25	140	253	393	.02	1.95
St. Albans Town	713,898.35	324,499.25	236	220	457	.03	1.41
St. George	623,462.40	363,690.50	80	450	530	.03	2.16
Sherburne	286,000.00	130,000.00	36	12	48	.00	.19
Troy	1,195,642.80	570,922.00	139	219	358	.01	1.97
Average —			178	249	428	.03	1.73
Sum —	13,496,017.15	6,478,298.55					
CATEGORY III							
Barnet	852,493.95	410,747.00	344	936	1,281	.07	5.40
East Middlebury	5,789,383.60	2,725,667.00	124	1,013	1,137	.01	3.61
Fairlee	1,495,275.10	718,420.25	164	388	553	.01	2.25
Jericho	2,173,860.20	1,026,868.00	144	469	613	.01	1.42
Pawlet	422,701.95	201,286.50	185	384	569	.07	2.88
Townshend	828,624.50	392,147.25	296	368	664	.04	3.03
Underhill	893,683.45	406,219.75	190	114	305	.01	.64
Average —			206	525	732	.03	2.75
Sum —	17,456,022.75	5,881,355.75					

Fixed Federal Grant & Variable Percentage Federal Grant to High User Cost Projects (generally small towns)

Table F-4 shows the impact of a federal grant program which would award a fixed (55%) federal grant for currently eligible categories of work together with basic 25% state grant. In addition to the base federal grant, the table computes a variable percentage federal grant (up to 100% of federal eligible project costs) which would be available to towns with user costs over 1½% of the Median Family Income. The variable percentage federal grant together with the base 55% federal grant could not exceed, but could equal the federally eligible project costs. The variable percentage federal grant would not be used to cover currently defined federal non-eligible costs or O & M costs.

The alternative federal financing plan outlined here is similar to the so-called "ceiling grant" program used in Vermont since 1978 which attempted to assure that annual household user costs for pollution abatement did not exceed $150 per year.

Category I projects would not be affected by this alternative since none would have annual user costs over 1½% of the Median Family Income. About 2/3 of Category II and III projects would receive variable percentage federal grants. Five (5) of the 11 Category II projects would realize annual user costs between $300 and $400, 3 of 11 between $400 and $500 and 2 over $500. Actual user costs average $344 or 1.24% of the Median Family Income. The resulting user costs are higher in Category III, averaging $453 and 1.42% of the Median Family Income. The total of the federal base grants given to these Category II and III projects is $25,952,040. The extra variable percentage federal grants necessary to reduce high user cost towns to 1½% of MFI is $2,873,877 or an 11% increase in total federal grant outlays. This same dollar amount in the state grants would represent an increase of 57% in the state appropriations, bring the typical annual appropriation from $5 to $7.8 million. This would represent 39% of the entire state capital appropriation.

Table F-4A shows that the actual federal grant award to those projects receiving the variable percentage grant ranged from 55.2% to 71% of the federal eligible project cost.

Based on the estimates above, it appears that small supplemental grants to small towns with high user costs could effectively reduce annual user cost to within acceptable limits. The increased federal financial exposure of 11% does not appear to be an excessive increase in the authorization level or in annual appropriations. An alternative source of funds might be to award reduced grants or no grants to projects which have annual user costs less than say ½% of the MFI, where that computation deducts applicable state grants from the local cost share.

Table F-4B makes such a computation, and shows that approximately $3.0 million in federal grant awards would be eliminated and those funds made available for increasing the federal grant to the high user cost towns. A program option of this type would not require increased authorization or appropriation levels, presuming the limited project sampling from Vermont is representative of national trends.

TABLE F-4
VARIABLE PERCENTAGE FEDERAL GRANT

Project	Base (55%) Federal Grant	State Grant	Initial User Cost	Variable Percent. Federal Grant	Result. User Cost
CATEGORY I					
Barre Town	2,636,856.80	1,198,571.30	186	0	186
Bellows Falls	2,182,144.30	1,119,868.80	149	0	149
Burlington City	829,392.85	376,996.75	31	0	31
Burlington City, Flynn	982,950.10	446,795.50	4	0	4
Castleton	1,970,969.00	895,895.00	147	0	147
Colchester F.D. #1	191,398.35	86,999.25	75	0	75
Dover	1,055,876.30	479,943.75	211	0	211
Fair Haven	1,136,796.00	248,508.90	128	0	128
Hartford - Wilder	985,484.50	511,940.00	130	0	130
Hinesburg	775,489.00	352,495.00	128	0	128
Ludlow	1,124,459.10	563,992.00	115	0	115
Proctor	2,677,701.40	1,256,812.30	281	0	281
Randolph	619,615.15	281,643.25	97	0	97
Rutland Town	821,098.85	373,226.75	277	0	277
St. Johnsbury	4,999,470.90	2,289,235.50	203	0	203
Shelburne F.D. #1	201,286.80	91,494.00	123	0	123
Shelburne F.D. #2	201,286.80	91,494.00	197	0	197
So. Burlington, Bartletts	201,286.80	91,494.00	87	0	87
So. Burlington, Airport	3,614,644.60	1,787,386.00	166	0	166
Swanton	570,312.60	259,233.00	148	0	148
Wilmington	961,606.25	451,193.50	166	0	166
Windsor	2,505,631.70	1,205,919.00	175	0	175
Winooski	382,796.70	173,998.50	54	0	54
Average —			142		142
Sum —	31,628,554.85	14,635,136.05		0	
CATEGORY II					
Bethel	2,064,734.10	978,714.75	368	136,879.90	333
Cambridge	316,798.35	143,999.25	617	60,231.51	518
Colchester Town	7,048,248.90	3,351,249.30	265	0	265
Fairfield F.D. #1	562,648.35	255,749.25	816	167,066.50	404
Jeffersonville	684,583.90	359,474.25	393	3,206.95	391
St. Albans Town	713,898.35	324,499.25	457	0	457
St. George	623,462.40	363,690.50	530	158,122.70	378
Sherburne	286,000.00	130,000.00	48	0	48
Troy	1,195,642.80	570,922.00	358	130,813.00	303
Average —			428		344
Sum —	13,496,017.15	6,478,298.55		656,320.56	
CATEGORY III					
Barnet	852,493.95	410,747.00	1,281	309,997.80	516
East Middlebury	5,789,383.60	2,725,667.00	1,137	1,326,272.00	574
Fairlee	1,495,275.10	718,420.25	553	232,849.70	416
Jericho	2,173,860.20	1,026,868.00	613	0	613
Pawlet	422,701.95	201,286.50	569	111,120.60	334
Townshend	828,624.50	392,147.25	664	237,316.70	413
Underhill	893,683.45	406,219.75	305	0	305
Average —			732		453
Sum —	12,456,022.75	5,881,355.75		2,217,556.80	

TABLE F-4A
VARIABLE PERCENTAGE FEDERAL GRANT
TOTAL FEDERAL GRANT PERCENTAGE

CATEGORY II

Project	Equiv Users	Annual User Cost	Annual User Cost % MFI	Total Fed. Grant As a % of Fed. Elig. Cost	O&M As a % of MFI
Bethel	408	333	1.5	58.64	.64
Cambridge	65	518	1.5	65.45	1.24
Colchester Town	1,900	265	.73	55	.25
Fairfield F.D. #1	43	404	1.5	71.33	1.15
Jeffersonville	165	391	1.5	55.25	.53
St. Albans Town	125	457	1.27	55	.65
St. George	110	378	1.50	68.94	.31
Sherburne	900	48	.17	55	.12
Troy	250	303	1.5	61.01	.68
Average —		344	1.24	60.62	.62

CATEGORY III

Barnet	43	516	2.00	75	1.33
East Middlebury	250	574	1.5	67.59	.32
Fairlee	180	416	1.50	63.56	.59
Jericho	205	613	1.33	55	.31
Pawlet	50	334	1.5	69.45	.83
Townshend	100	413	1.50	70.75	1.07
Underhill	300	305	.61	55	.38
Average —		453	1.42	65.19	.69

TABLE F-4B
NO FEDERAL GRANTS TO PROJECTS
WITH USER COSTS LESS THAN 0.5% MFI

CATEGORY I

Project	Total Project Cost	Original Federal Grant	State Grant	Federal Grant Reduction	Result. Final User Cost % MFI
Barre Town	4,794,285	2,636,856.80	1,198,571.30	0	.61
Bellows Falls	4,479,475	2,182,144.30	1,119,868.80	0	.56
Burlington City	1,507,987	829,392.85	376,996.75	829,392.90	.14
Burlington City, Flynn	1,787,182	982,950.10	446,795.50	982,950.10	.04
Castleton	3,583,580	1,970,969.00	895,895.00	0	.56
Colchester F.D. #1	347,997	191,398.35	86,999.25	191,398.40	.39
Dover	1,919,775	1,055,876.30	479,943.75	0	.90
Fair Haven	1,656,726	1,136,796.00	248,508.90	0	.44
Hartford - Wilder	2,047,760	985,484.50	511,940.00	0	.45
Hinesburg	1,409,980	775,489.00	352,495.00	0	.43
Ludlow	2,255,968	1,124,459.10	563,992.00	0	.41
Proctor	5,027,250	2,677,701.40	1,256,812.30	0	.96
Randolph	1,126,574	619,615.15	281,643.25	0	.36
Rutland Town	1,492,907	821,098.85	373,226.75	0	.90
St. Johnsbury	9,156,944	4,999,470.90	2,289,235.50	0	.73
Shelburne F.D. #1	365,976	201,286.80	91,494.00	201,286.80	.38
Shelburne F.D. #2	365,976	201,286.80	91,494.00	0	.47
So. Burlington, Bartletts	365,976	201,286.80	91,494.00	201,286.80	.28
So. Burlington, Airport	7,149,545	3,614,644.60	1,787,386.00	0	.48
Swanton	1,036,932	570,312.60	259,233.00	0	.58
Wilmington	1,804,774	961,606.25	451,193.50	0	.62
Windsor	4,823,676	2,505,631.70	1,205,919.00	0	.62
Winooski	695,994	382,796.70	173,998.50	382,796.70	.31
Sum —		31,628,554.85	14,635,136.05	2,789,111.70	

CATEGORY II

Bethel	3,914,860	2,064,734.10	978,714.75	0	1.66
Cambridge	575,998	316,798.35	143,999.25	0	1.78
Colchester Town	13,499,830	7,048,248.90	3,351,249.30	0	.73
Fairfield F.D. #1	1,022,998	562,648.35	255,749.25	0	3.02
Jeffersonville	1,437,898	684,583.90	359,474.25	0	1.50
St. Albans Town	1,297,998	713,898.35	324,499.25	0	1.27
St. George	1,454,763	623,462.40	363,690.50	0	2.10
Sherburne	520,000	286,000.00	130,000.00	286,000.00	.28
Troy	2,283,690	1,195,642.80	570,922.00	0	1.77
Sum —		13,496,017.15	6,478,298.55	286,000.00	

CATEGORY III

Barnet	1,642,989	852,493.95	410,747.00	0	4.96
East Middlebury	10,902,668	5,789,383.60	2,725,667.00	0	2.96
Fairlee	2,873,681	1,495,275.10	718,420.25	0	1.99
Jericho	4,107,473	2,173,860.20	1,026,868.00	0	1.33
Pawlet	805,147	422,701.95	201,286.50	0	2.55
Townshend	1,568,589	828,624.50	392,147.25	0	2.41
Underhill	1,624,879	893,683.45	406,219.75	0	.61
Sum —		12,456,022.75	5,881,355.75	0	

A program such as outlined above might provide a state the discretion to vary the federal grant awarded to low user cost projects (½% MFI user cost) and for high user cost projects (½% MFI user cost) where state discretion would be limited to:

a) increasing the federal grant from 55% to no more than 75% on high cost small town projects;

b) reducing the federal grant from 55% to a uniform lesser amount on low cost projects;

c) designation by a state governor to activate the above discretions similar to currently authorized governors discretionary use of federal grant funds for collection sewer funding.

Federal Loan Program

It is clear from the previous analysis that slight alteration of the current federal grant funding will be sufficient to bring small town user costs to within locally acceptable ranges. A federal loan program was also evaluated to determine if low or zero interest loans would also provide sufficient economic advantage to reduce small town user costs to acceptable levels. The analysis was founded on an assumption of continued state grant funding at a 25% level for treatment plants, reserve capacity, interceptors and collectors which abate pollution sources. As a first "worst case trial", the resulting local share (total project cost less state grant) was taken as the loan amount to be repaid over 30 years at 0% interest. The annual user cost was then computed as the sum of the capital retirement plus the annual O & M costs.

Table F-6 presents the results of this trial. Category I user costs are at satisfactory levels averaging $149 and 0.58% and 0.60% of the MFI and MHI.

Category II costs begin to approach reasonable levels under this alternative averaging $432 and 1.57% and 1.75% of the MFI and MHI. Category III user costs remain high averaging $760 and 2.50% of MFI and 2.85% of MHI.

The loan program outlined above will not reduce annual user costs to acceptable local levels.

55% Federal Grant & State Grant & Federal Loan

A variation of the loan program was also considered. That alternative would continue award of base 55% grants to all towns, but would provide low or zero interest loans for the remaining local share. The project estimates are shown on Table F-7. The loan amount equals the total project cost less the base 55% federal grant and the 25% Vermont state grant. Repayment over 30 years at 0% interest has been presumed.

TABLE F-6
FEDERAL LOAN FOR ALL LOCAL COSTS
(30 Years at 0% Interest)

Project	Total Project Cost	Annual O&M	Annual User Cost	% MFI	% MHI	Federal Loan Amount
CATEGORY I						
Barre Town	4,794,285	116,000	201	.66	.75	3,595,713.75
Bellows Falls	4,479,475	95,160	131	.53	.75	3,359,606.25
Burlington City	1,507,987	343,970	31	.12	.17	1,130,990.25
Burlington City, Flynn	1,787,182	13,920	4	.01	.02	1,340,386.50
Castleton	3,583,580	12,200	169	.64	.75	2,687,685.00
Colchester F.D. #1	347,997	35,960	77	.27	.29	260,997.75
Dover	1,919,775	12,200	240	1.03	1.13	1,439,831.25
Fair Haven	1,656,726	64,320	153	.53	.59	1,408,217.10
Hartford - Wilder	2,047,760	11,590	117	.40	.47	1,535,820.00
Hinesburg	1,409,980	60,300	136	.45	.48	1,057,485.00
Ludlow	2,255,968	73,700	112	.40	.48	1,691,976.00
Proctor	5,027,250	67,100	296	1.01	1.13	3,770,437.75
Randolph	1,126,574	71,020	101	.38	.48	844,930.75
Rutland Town	1,492,907	21,000	306	1.00	1.07	1,119,680.25
St. Johnsbury	9,156,944	277,760	216	.77	.98	6,867,708.50
Shelburne F.D. #1	365,976	69,600	126	.30	.34	274,482.00
Shelburne F.D. #2	365,976	58,000	201	.48	.55	274,482.00
So. Burlington, Bartletts	365,976	87,000	88	.23	.27	274,482.00
So. Burlington, Airport	7,149,545	214,200	163	.48	.55	5,362,159.00
Swanton	1,036,932	139,200	152	.59	.70	777,699.00
Wilmington	1,804,774	41,540	173	.65	.77	1,353,580.50
Windsor	4,823,676	147,200	176	.62	.70	3,617,757.00
Winooski	695,994	100,100	55	.24	.30	521,995.50
Average —			149	.51	.60	
Sum —						44,568,103.10
CATEGORY II						
Bethel	3,914,860	58,000	382	1.72	2.01	2,936,145.25
Cambridge	575,998	27,900	650	1.88	2.13	431,998.75
Colchester Town	13,499,830	176,250	270	.74	.81	10,148,580.75
Fairfield F.D. #1	1,022,998	13,400	906	3.36	3.54	767,248.75
Jeffersonville	1,437,898	23,200	358	1.37	1.78	1,078,423.75
St. Albans Town	1,297,998	29,600	496	1.38	1.53	973,498.75
St. George	1,454,763	8,800	410	1.62	1.67	1,091,072.50
Sherburne	520,000	33,000	51	.17	.20	390,000.00
Troy	2,283,690	34,800	367	1.81	2.02	1,712,768.00
Average —			432	1.56	1.74	
Sum —						19,529,736.50
CATEGORY III						
Barnet	1,642,989	14,800	1,299	5.03	5.47	1,232,242.00
East Middlebury	10,902,668	31,000	1,214	3.17	3.85	8,177,001.00
Fairlee	2,873,681	29,600	563	2.03	2.29	2,155,260.75
Jericho	4,107,473	29,600	645	1.40	1.49	3,080,605.00
Pawlet	805,147	9,280	588	2.65	2.98	603,860.50
Townshend	1,568,589	29,600	688	2.49	3.18	1,176,441.75
Underhill	1,624,879	57,050	325	.65	.69	1,218,659.25
Average —			760	2.49	2.84	
Sum —						17,644,070.25

Table F-7 shows this alternative to provide acceptable user cost levels for all categories.

	Avg. User Cost	Avg. % MFI	Avg. % MHI
Category I	98	0.33	0.39
Category II	257	0.91	1.03
Category III	372	1.23	1.42

Only 1 project in Category II and 1 project in Category III would realize annual user costs over 1½% MFI.

The $24 million in extra federal funds required to support a loan program of this magnitude would represent an increase in Vermont's allotment of 42%, as shown below.

	Total Federal Base Grant (55%)	Total Federal Loan Funds	% Increase
Category I	$31,628,555	$12,939,549	40.9
Category II	$13,496,017	$ 6,033,719	44.7
Category III	$12,456,023	$ 5,188,048	41.7
Total	$57,580,595	$24,161,315	42.0

The gross federal funds required is approximately half again the funding committed to base 55% grants. This magnitude of funding increase must come from increased federal appropriations. It is not practical to consider, as a source of funding, reduced federal grants for low user cost projects as reviewed in the earlier section of the report. Table F-9 shows that if the user cost threshold for grant funding were set at 1% of the Median Family Income, only a $5.5 million reduction in federal grant outlays would be realized.

The total federal exposure to loans of the type above could be substantially reduced if loans were limited to only those projects which after receipt of a 55% federal grant and a 25% state grant, had annual user costs exceeding 1½% MFI. The total loan requirements for such a program are shown on Table F-8. All but two projects would have user costs below 1½% Median Family Income. Total loans of approximately $6.5 million would be required. Funds could be obtained from increased appropriations or from reduced grants to low user cost projects, as estimated in Table F-9.

Initiation of the latter loan program should probably be at state discretion upon decision of a governor, similar to a governor's decision to use federal grants in support of collection sewer funding. The boundary conditions of such a program might include:

TABLE F-7
FEDERAL LOAN FOR ALL LOCAL COSTS
55% FEDERAL GRANT

Project	Total Project Cost	Annual O&M	Annual User Cost	% MFI	% MHI	Federal Loan Amount
CATEGORY I						
Barre Town	4,794,285	116,000	126	.41	.47	958,857.00
Bellows Falls	4,479,475	95,160	91	.34	.48	1,177,462.00
Burlington City	1,507,987	343,970	29	.11	.15	301,597.40
Burlington City, Flynn	1,787,182	13,920	2	.00	.01	357,436.40
Castleton	3,583,580	12,200	60	.22	.26	716,716.00
Colchester F.D. #1	347,997	35,960	66	.23	.25	69,599.40
Dover	1,919,775	12,200	99	.42	.47	383,955.00
Fair Haven	1,656,726	64,320	101	.34	.39	271,421.10
Hartford - Wilder	2,047,760	11,590	55	.19	.22	550,335.50
Hinesburg	1,409,980	60,300	99	.33	.35	281,996.00
Ludlow	2,255,968	73,700	79	.28	.34	567,517.00
Proctor	5,027,250	67,100	159	.54	.61	1,092,736.00
Randolph	1,126,574	71,020	80	.30	.38	225,315.60
Rutland Town	1,492,907	21,000	162	.53	.56	298,581.40
St. Johnsbury	9,156,944	277,760	145	.52	.65	1,868,238.00
Shelburne F.D. #1	365,976	69,600	115	.27	.31	73,195.20
Shelburne F.D. #2	365,976	58,000	181	.43	.50	73,195.20
So. Burlington, Bartlett	365,976	87,000	82	.21	.25	73,195.20
So. Burlington, Airport	7,149,545	214,200	113	.33	.38	1,747,514.00
Swanton	1,036,932	139,200	134	.52	.62	207,386.40
Wilmington	1,804,77	41,540	109	.41	.48	391,974.30
Windsor	4,823,676	147,200	121	.43	.48	1,112,125.00
Winooski	695,994	100,100	49	.21	.27	139,198.80
Average —			98	.33	.39	
Sum —						12,939,547.90
CATEGORY II						
Bethel	3,914,860	58,000	213	.96	1.12	871,411.20
Cambridge	575,998	27,900	488	1.41	1.59	115,200.40
Colchester Town	13,499,830	176,250	147	.40	.44	3,100,332.00
Fairfield F.D. #1	1,022,998	13,400	470	1.74	1.83	204,600.40
Jeffersonville	1,437,898	23,200	220	.84	1.09	393,839.90
St. Albans Town	1,297,998	29,600	306	.85	.94	259,600.40
St. George	1,454,763	8,800	221	.87	.90	467,610.10
Sherburne	520,000	33,000	40	.14	.16	104,000.00
Troy	2,283,690	34,800	208	1.03	1.14	517,125.20
Average —			257	.91	1.02	
Sum —						6,033,719.60
CATEGORY III						
Barnet	1,642,989	14,800	638	2.47	2.69	379,748.10
East Middlebury	10,902,668	31,000	442	1.15	1.40	2,387,617.00
Fairlee	2,873,681	29,600	286	1.03	1.16	659,985.70
Jericho	4,107,473	29,600	291	.63	.67	906,744.90
Pawlet	805,147	9,280	306	1.37	1.55	181,158.60
Townshend	1,568,589	29,600	411	1.49	1.87	347,817.30
Underhill	1,624,879	57,050	226	.45	.48	324,975.80
Average —			372	1.23	1.40	
Sum —						5,188,047.40

TABLE F-8
FEDERAL LOAN PROGRAM WITH 55% FEDERAL GRANT
LIMITED TO PROJECTS WITH USER COSTS OVER 1.5% MFI

Project	Total Project Cost	Federal Loan Amount	Final User Cost	% MFI	% MHI
CATEGORY II					
Bethel	3,914,860	871,411	213	.96	1.12
Cambridge	575,998	115,200	488	1.41	1.59
Colchester Town	13,499,830	0	265	.73	.80
Fairfield F.D. #1	1,022,998	204,600	470	1.74	1.83
Jeffersonville	1,437,898	393,839	220	.84	1.09
St. Albans Town	1,297,998	0	457	1.27	1.41
St. George	1,454,763	467,610	221	.87	.90
Sherburne	520,000	0	48	.17	.19
Troy	2,283,690	517,125	208	1.03	1.14
Sum	—	2,569,785			
CATEGORY III					
Barnet	1,642,989	379,748	638	2.47	2.69
East Middlebury	10,902,668	2,387,617	442	1.15	1.40
Fairlee	2,873,681	659,985	286	1.03	1.16
Jericho	4,107,473	0	613	1.33	1.42
Pawlet	805,147	181,158	306	1.37	1.55
Townshend	1,568,589	347,817	411	1.49	1.87
Underhill	1,624,879	0	305	.61	.64
Sum	—	3,956,325			
Total Add'l Federal Loan	—	6,526,114			

TABLE F-9
FEDERAL LOAN PROGRAM
NO FEDERAL GRANTS FOR PROJECTS WITH USER COSTS
LESS THAN 1.0% MFI

Project	Total Project Cost	Original Federal Grant	Federal Grant Reduction	Final % MFI
CATEGORY I				
Barre Town	4,794,285	2,636,856.80	0	.61
Bellows Falls	4,479,475	2,182,144.30	0	.56
Burlington City	1,507,987	829,392.85	829,392	.14
Burlington City, Flynn	1,787,182	982,950.10	982,950	.04
Castleton	3,583,580	1,970,969.00	0	.56
Colchester F.D. #1	347,997	191,398.35	191,398	.39
Dover	1,919,775	1,055,876.30	0	.90
Fair Haven	1,656,726	1,136,796.00	0	.44
Hartford - Wilder	2,047,760	985,484.50	0	.45
Hinesburg	1,409,980	775,489.00	0	.43
Ludlow	2,255,968	1,124,459.10	1,124,459	.79
Proctor	5,027,250	2,677,701.40	0	.96
Randolph	1,126,574	619,615.15	619,615	.62
Rutland Town	1,492,907	821,098.85	0	.90
St. Johnsbury	9,156,944	4,999,470.90	0	.73
Shelburne F.D. #1	365,976	201,186.80	201,286	.38
Shelburne F.D. #2	365,976	201,286.80	201,286	.63
So. Burlington, Bartletts	365,976	201,286.80	201,286	.28
So. Burlington, Airport	7,149,545	3,614,644.60	0	.48
Swanton	1,036,932	570,312.60	570,312	.80
Wilmington	1,804,774	961,606.25	0	.62
Windsor	4,823,676	2,505,631.70	0	.62
Winooski	695,994	382,796.70	382,796	.31
Sum	—		5,304,780	
CATEGORY II				
Bethel	3,914,860	2,064,734.10	0	1.66
Cambridge	575,998	316,798.35	0	1.78
Colchester Town	13,499,830	7,048,248.90	0	.73
Fairfield F.D. #1	1,022,998	562,648.35	0	3.02
Jeffersonville	1,437,898	684,583.90	0	1.50
St. Albans Town	1,297,998	713,898.35	0	1.27
St. George	1,454,763	623,462.40	0	2.10
Sherburne	520,000	286,000.00	286,000	.28
Troy	2,283,690	1,195,642.80	0	1.77
Sum	—		286,000	
CATEGORY III				
Barnet	1,642,989	852,493.95	0	4.96
East Middlebury	10,902,668	5,789,383.60	0	2.96
Fairlee	2,873,681	1,495,275.10	0	1.99
Jericho	4,107,473	2,173,860.20	0	1.33
Pawlet	805,147	422,701.95	0	2.55
Townshend	1,568,589	828,624.50	0	2.41
Underhill	1,624,879	893,683.45	0	.61
Sum	—		0	
Total Federal Grant Reduction	—		5,590,785	

a) Loans only to thise projects with user costs over 1½% MFI after application of basic state and federal grants.

b) A uniform reduction in federal grant amount (possibly to zero) for those projects with annual user costs below 1% Median Family Income, computed prior to application of the federal base 55% grant.

Program Flexibility

The program options outlined above depend upon the ability of the managing state to tailor the use of the federal grants (within the bounds of the act) to best assure completion of their remaining projects. The historic trend toward providing the flexibility should now be continued and enhanced.

Section 205(g) of the act provided for the state management of the construction grants program within prescribed bounds and later the national desire to reduce grant awards for collection sewers was implemented, giving a state latitude to continue collector grants to the extent of 20% of the state allotment. The program changes advocated here would also give a state discretion to modify the use of about 20% of their allotment. In terms of dollar volume, it is roughly equivalent to a state's current discretion to fund collection sewers.

Consideration should also be given to altering the currently mandatory innovative/alternative and small town set asides to make them discretionary. The 4% I/A set aside requires the concomittant expenditure of an additional 11% base grant money and focuses excessive attention on the possibility of failing to achieve 100% obligation unless projects can be created which will qualify for the I/A funding. The national objective of promoting alternative and innovative technology will be sustained by the very presence of preferential grant funding without the artificial pressure of meeting timely obligations. Eliminating that pressure will also stop program managers from trying to invent and promote "innovative" projects and from trying to use "alternative" commonly used technology.

The small town set aside intended to assure the availability of base grant funding to match I/A grant funds in small towns should also be made discretionary. States already have the ability to elevate the priority of I/A projects, without which ability, the mandatory small town set aside could not be used. Relief of the pressure to obligate will allow managers to focus their effort on the completion of needed projects and the use of truly innovative and alternative technology where it is an appropriate asset to a project.

An alternative strategy to promote I/A technology might be to increase the federal grant contribution such that the base grant plus the extra I/A grant equaled 90% of the project element cost, and eliminate the federal guarantee of funding replacement costs if unassignable failure should occur. This action would increase local incentive to seriously evaluate I/A project alternatives. The applicant's financial advantage would be substantial and the town (knowing there was no federal underwrite of failure) would look to financial assurances/protection from the A/E firm or contractor promoting the I/A technology before initiating the project.

Small Town Project Phasing

Phasing small town, high user cost projects may be a viable means of completing the municipal pollution control program if the federal financial presence is not to be expanded. The earlier review of funding alternatives demonstrated that small towns requiring original central collection and treatment facilities will have excessively high user costs. If it is concluded that the scope of federal eligible costs remain unchanged and that the extent of federal participation in those costs remain unchanged, then the projects must be reduced in scope, or phased. The purpose of phasing would be to define a first phase project which would, for example, abate health hazards and make substantial progress toward achieving water quality standards at an annual user cost of say 1½% MFI or 1½% MHI, and with the application of state and federal grants. The second or subsequent phases would be undertaken at some indeterminant time when annual user costs for those phases could be brought into acceptable limits.

Implementing a program option of phasing will require definition of economic thresholds above which a project is considered an excessive economic burden. One and one-half percent of the MFI or MHI seems to be a satisfactory threshold. Successful implementation would also require withdrawal of the current federal policy of authorizing phased grants only where the applicant agrees to complete remaining phases on a fixed schedule with or without federal grant assistance. Later phases could be completed in accord with the Municipal Compliance Plan of the National Municipal Policy.

Available phasing alternatives might include providing primary instead of secondary treatment where the receiving water's assimilative capacity would not be exceeded, limiting the option of phasing only to small towns, phasing sewer construction leaving the more scattered pollution sources to be temporarily abated by on-site systems which are uniquely adopted to the limited sites or which may continue to discharge to small streams after filtering through gravel or sand wicks.

The decision to phase and the appropriate definition of a fundable first phase project are somewhat discretionary and should probably be left with the state water pollution control agency which can best decide upon first phase compliance with that state's water quality standards.

BASELINE FOR DETERMINING REASONABLENESS OF USER COST

The determination of appropriate grant funding formulas for future years requires that one adopt a base line user cost above which it is not reasonable to expect local support for a project. The term user as used here means a typical family user or its equivalent in industrial or commercial sewage flow.

The Vermont Legislature adopted a concept of acceptable base line user cost in 1978 with enactment of No. 241, amending 10 V.S.A. §1625, which authorized the award of increased state grants to communities which would incur annual equivalent user costs exceeding $150 per year. If $150 is inflated at 8% and 10% since 1978, it is equivalent to an annual user cost of $238 and $265 today. This also seems to correspond with levels of user cost above which significant objection to a project arises and which is based on cost. This, however, may not be representative of a national trend.

Nationwide application of a threshold user cost must be based upon a readily available measure of economic stress imposed by a sewerage project. In the pat, EPA has used percentage values of Median Family Income to compare against user costs in its financial capability analysis. These percentage values have typically ranged 0.5% to 1.5% of Median Family Income.

Median family income is as defined by the Census Bureau in the 1980 Census.

The Median Family Income figures currently available, are for the year 1979. This statistic can reasonably be expected to increase more or less with inflation, and current values of that parameter adjusted by intervening inflation should be used to judge whether or not project costs impose an unreasonable economic burden. Failure to adjust this number will result in comparing inflated projects with historical (uninflated) income levels. The average 1979 Medium Family Income for the remaining projects to be built is $18,325 (1% - $183.25; 1½% - $274.87). At inflation rates of 8% and 10%, the 1% threshold value of MFI increases to $269 and $294 by 1984. Similarly, the 1½% threshold increases to $402 and $441 by 1984. Both the 1% of the MFI and 1½% of the MFI threshold represent a significantly higher level of economic stress than the values adopted by the Vermont General Assembly in 1978.

A second measure of economic capability is the statistic Median Household Income, also generally available from 1980 Census data. The average 1979 MHI for the remaining projects is $15,827 (1% - $158.27; 1½% - $237.40). At inflation rates of 8% & 10%, the 1% threshold value would increase to $232 and $254 respectively. The 1½% threshold value would increase to $348 and $382.

The comparison shown in the table below show that threshold values of economic stress in Vermont are most closely approximated by use of 1% of the Median Household Income, and next by 1% of the Median Family Income.

		1984 Equivalent Cost Annual Inflation Rate			
		8%		10%	
1978 Vermont Act (1978)	$150	238	1.5868	265	1.7715
1% Median Family Income (1979)	$183	269	1.4693	294	1.6105
1½% Median Family Income (1979)	$274	402	1.4693	441	1.6105
1% Median Household Income (1979)	$158	232	1.4693	254	1.6105
1½% Median Household Income (1979)	$237	348	1.4693	382	1.6105

BASIS OF COMPUTATIONS

Project Costs

Project cost estimates have been drawn from the most current information available from within department files. Costs have been inflated at a rate of 5% annually from 1984 to the anticipated year of grant award.

Operation and Maintenance Costs

O & M costs are drawn from the most current information available in department files. Costs have been inflated at a rate of 5% annually from 1984 to the anticipated year of grant award.

Median Family Income & Median Household Income

These costs were obtained from 1980 Census data and inflated at a rate of 5% annually from 1979 to the anticipated year of grant award. The 1980 Census includes income data for the year 1979.

Equivalent Users

This is the estimated number of equivalent users (based on sewage flow from a single family dwelling) which will be connected to the project if the project were operational in 1984. These numbers have not been inflated.

Annual User Cost

Computations of annual user costs are based upon capital debt retirement in 20 years at 10% interest.

085 1005

SPELLMAN
GOVERNOR

STATE OF WASHINGTON
PLANNING & COMMUNITY AFFAIRS AGENCY
Ninth & Columbia Building MS/GH51 • Olympia, Washington 98504 • (206) 753-2200

March 26, 1984

Mr. Charles Mooar
Office of Water Program Operations
U. S. Environmental Protection Agency
401 M Street (WH-595)
Washington, D.C. 20460

RECEIVED
FRD
MAR 28 1984

Dear Mr. Mooar:

As a follow-up to our conversation last week, I am sending you a copy of The Washington State Public Works Report which outlines the inventory, condition, and critical needs of the basic state and local facilities for the next five years. We have also produced a companion appendix which lists individual projects in each jurisdiction.

I commend EPA for undertaking a study on the Federal, state and local roles in promoting self-sufficiency in terms of wastewater treatment facilities. The state of Washington is also making every effort to promote the concept of self-sufficiency and long-term stability in relation to all aspects of the basic infrastructure. A cooperative partnership in this effort with the Federal government is essential.

As part of a small research project we are currently undertaking for the Washington State Department of Ecology (DOE), we are exploring the relationship of past methods of financing sewerage capital needs and current user fees in a number of case studies across the state. At DOE behest, we will also recommend how the state can best assist in future capital needs related to sewerage. I will send a copy of this report to you in the next couple of weeks.

In the meantime, if we can be of any help to you in your research effort, please do not hesitate to call.

Sincerely,

Nancy Rutledge
Project Manager

Enclosure

NR:nj

The Washington State Public Works Report

December 1983

John Spellman, Governor
State of Washington

Planning and Community Affairs Agency

JOHN SPELLMAN
Governor

STATE OF WASHINGTON
PLANNING & COMMUNITY AFFAIRS AGENCY
Ninth & Columbia Building, MS/CH51 • Olympia, Washington 98504 • (206) 753-2200

Dear Members of the Washington State Legislature:

It is with pride and pleasure that I submit to you The Washington State Public Works Report, prepared by the Planning and Community Affairs Agency. As noted in the Acknowledgments and in the text, this report has been fashioned with the help of hundreds of our state's citizens. Without their support, the task would have been impossible.

We view this effort as the first step in addressing local and state public works needs in Washington. The information and recommendations herein are intended to encourage lively discussion and continuing analysis of state priorities and long-range finance solutions. We hope that you will find the report useful in your deliberations.

We look forward to your comments and to ongoing work with you on this important subject.

Sincerely,

Patrick W. Dunn
Acting Director

The Washington State

PUBLIC WORKS
REPORT

December, 1983

Submitted to the Legislature
by the Planning and Community Affairs Agency

Patrick W. Dunn, Acting Director

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Acknowledgments

The completion of The Washington State Public Works Report was made possible by the cooperation of hundreds of people throughout the state. We would like to pay special tribute to the 455 cities, counties and special purpose districts that took the time to respond to the survey and provided substantial new information for this report. Their work forms the basis of this report.

The members of the Public Works Advisory Board provided technical direction as well as significant contributions to the text of this report. Their readiness to travel long distances in many cases, to tackle difficult and controversial issues, and to review innumerable drafts was a major asset to this effort. All of their ideas and opinions are not necessarily reflected in this report, but those omitted can be expected to provide the grist for significant work in the future.

As chairman of the Advisory Board, Mayor Tom Trulove supplied unflagging leadership. Mr. Jack Locke, chairman of the subcommittee on technical priorities, orchestrated the invaluable assistance of the engineering community through the local sections of the American Society of Civil Engineers. Mr. Hugh Spitzer, chairman of the subcommittee on finance, likewise provided access to the technical expertise of the local municipal finance industry. Mayor Pete Butkus, subcommittee chairman for ongoing systems and education, added first-hand experience and insight to all deliberations. The value of their contributions, as well as those of the entire Advisory Board, is inestimable.

The local government associations also supplied much assistance. Their enthusiasm and support was a major factor in the attainment of the high survey response rate. Many thanks go to Kent Swisher and Stan Finkelstein of the Association of Washington Cities, Rick Wickman of the Washington State Association of Counties, Dave Rogers of the Washington State Association of Sewer Districts, and Helene Smith of the Washington State Association of Water Districts.

The endorsement of this effort by the directors of all the respective state agencies and the subsequent cooperation of their staffs represented a major contribution of time and effort. State agency staff were unfailingly patient with our frequent inquiries and provided a wealth of information on state and local public works. We would like to make special note of the efforts and helpfulness of David Anderson, Barry Draeger, Keith Eggen and John Henchman of the Department of Transportation, Ernie Geissler and Marian Ritchie of the County Road Administration Board, John Spencer, Ed Garling and Gary Rothwell of the Department of Ecology, Jim Pluntze, Ken Merry, John Aden, Cheryl Bergener, and Jim Thompson of the Department of Social and Health Services, Bill Bush of the Parks and Recreation Commission, Bob Wilder and Jerry Pelton of the Interagency Committee for Outdoor Recreation, Pat Timmons of Data Processing Authority Service Center No. 1, and Kim O'Hara of the Office of Financial Management.

Professor Philip J. Bourque, University of Washington Graduate School of Business Administration, provided substantial assistance and insight on investment trends in public works and related economic issues. Mr. H. Stuart Elway of Communication Design in Seattle furnished his technical expertise at several critical junctures on the design and format of the survey and the graphic presentations in the report.

Don Bojarski, Christie Bojarski, and Elaine Porterfield skillfully aided the data entry and verification process.

A final note of appreciation goes to Karen Rahm, former Director of the Planning and Community Affairs Agency. Her vision and support of this report through all the tough, early stages was a major inspiration for its completion.

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PART I: INTRODUCTION

I.A: Report Overview and Background

The Washington State Public Works Report originated with Substitute Senate Bill 3035 which was developed and passed by the 1983 Legislature and signed into law by Governor Spellman on May 17, 1983. This legislation requires the Planning and Community Affairs Agency (PCAA) to prepare a comprehensive plan for the replacement and repair of state and local public works. The scope of this report to the Legislature includes the inventory, condition and critical needs for the next five years of state and local:

- streets and roads
- bridges
- water systems
- sewer and storm sewer systems
- dams
- parks and recreation facilities

The legislation also requires that the report include an analysis of state and local financial resources and funding shortfalls, financing innovations in other states, a set of finance recommendations and a proposal for updating the report on an ongoing basis.

The approach taken in SSB 3035 reflects an important policy decision by the Legislature and the Governor, namely, to step back and examine primary state and local public works needs before formulating a response to apparent or alleged

problems. In this regard, The Washington State Public Works Report provides both a catalogue and a preliminary analysis of key public facilities through the state, as well as estimates of critical needs and available resources through the next five years. The report presents some early conclusions about the data and the great quantity of anecdotal information provided by the hundreds of state and local officials, engineers, and others who participated in this effort.

The complexity and sheer volume of the information generated by this study does not yield easily to generalizations on the state's pressing public works problems. The precision and credibility of the reported numbers and the dimension of the shortfall deserve to be tested by vigorous debate and continuing scrutiny. Much more thorough analysis of the data is needed to guide the development of effective, broad-based state policy and financing solutions. Concurrent research and public discussion on the impact and cost-effectiveness of Federal and state standards and regulations and local management practices may also help to sharpen cost estimates of prospective critical needs.

Nonetheless, the initial examination of the gap between needs and available funding provides a reasonable starting point for further analysis and debate. It may be agreed, for instance, that larger and more stable sources of capital are necessary, especially to reduce the backlog of critical projects which threaten public health and safety or system integrity. However, the extent of unfunded critical needs, even assuming a broad margin for error or varying interpretation, still is likely to strain the practical limits of state or Federal resources for the next few years.

In the short run and most likely in the long run as well, state and local government must continue to grapple with tough choices for allocating limited

resources. To aid this effort, this report examines and suggests a number of recommendations which are intended to improve local flexibility and the ability of both state and local government to generate adequate public works capital. These recommendations do not represent an exhaustive list; rather they are intended to fuel the continuing search for ideas to aid the revitalization of Washington State's infrastructure.

PCAA involvement with this issue began nearly a year before the passage of SSB 3035. In 1982, the agency was asked to participate in several national surveys assessing the condition and needs of the state's infrastructure, or basic public work facilities, and found that the requested information was simply not available. Although state agencies had considerable data on specific state or local public works needs, no single agency or organization had ever tried to collect and organize it in a comprehensive or consistent fashion. Survey questions stirred much discussion and the realization that the state should have this information as the basis for sound financial and economic planning.

In November, 1982, at Governor Spellman's initiative, Washington State became one of the first six states participating in the National Infrastructure Analysis, sponsored by the Joint Economic Committee of the United State Congress. With the aid and support of Dean Marshall Kaplan at the University of Colorado, Denver, Professor Philip J. Bourque, at the University of Washington, and the Washington State Department of Ecology, PCAA produced and published The Washington State Infrastructure Study in July, 1983. As a "threshold analysis," this document provided an indication of historical investment trends and the magnitude of the state's capital spending needs through the year 2000. It also served as early impetus for the research which has led to this report. The principal conclusions of this earlier study include:

- relative to personal income and on a per capita basis, real capital spending for public facilities in Washington State is lower now than at any time in the past 20 years
- meeting perceived capital needs projected to the year 2000 would require spending at levels more than 2 1/2 times the annual rates which have prevailed in the past decade
- the real capital outlays projected during the same period (1983-2000) show a persistent declining trend

While The Washington State Infrastructure Study depended on the extrapolation of state data, The Washington State Public Works Report demanded a first-hand accounting of local public facilities. Since there were no appropriate working models for this kind of effort in Washington State or nationally, PCAA first had to formulate a survey of local jurisdictions to gain basic information as well as a genuinely local perspective on critical public works needs for the next five years.

The design and conduct of the survey was a cooperative effort involving a wide range of local officials, the public works and engineering communities, and state agency personnel. Numerous drafts of the survey instrument were constructed, critically reviewed and revised by these individuals until a consensus was reached on the scope of the questions and their ability to elicit useful information from both small and large jurisdictions throughout the state. Following a pre-test, the final version of the survey was distributed on June 22, 1983 to over 700 Washington cities, counties and special purpose districts. State-wide workshops, extensive telephone and written follow-up and the active support of the local government associations helped to promote a high level of awareness and participation in the effort. In addition, members of the Wash-

ington State sections of the American Society of Civil Engineers and several local officials with planning experience volunteered their own time to work with smaller communities requiring assistance with survey questions.

This combined effort and support helped attain an 87 percent response rate from the jurisdictions receiving the survey, effectively representing over 98 percent of the state's population. Of the respondents, 455 jurisdictions actually own and operate one or more of the facilities specified by the enabling legislation. The survey provided over 800,000 pieces of information on the state's public facilities, many of which had not been collected previously.

For some communities, the compilation of survey information represented the first examination of the critical needs and financial resources of their key public facilities in several years. It is hoped that the survey also will serve as the first step toward the development of local capital improvement planning and the long-term renewal and enhancement of the state's public works system.

I.B: Summary of the Data

Washington cities, counties and special purpose districts report almost $4.3 billion of critical repair and replacement projects needed for streets and roads, bridges, water, sewer, and storm sewer systems, dams, and parks and recreation facilities in the next five years.

These same local governments report that they expect to be able to finance approximately $2.3 billion, or about 53 percent of the total costs of identified critical projects, from a wide variety of revenue sources. Nevertheless, the projected shortfall exceeds $2 billion.

The total cost of critical projects, available funding and the funding shortfal among the various categories of local government facilities are shown in Table

Table I.B-1: TOTAL LOCAL JURISDICTION PROJECT COSTS, AVAILABLE FUNDING AN FUNDING SHORTFALL: 1984-88 ($ in millions)

Public Works Category	Project Costs	Available Funding	Funding Shortfall
Streets/Roads	$ 1,894	828	$ 1,066
Bridges	390	171	219
Water	430	294	136
Sewer/Storm Sewer	1,101	636	465
Dams	44	35	9
Parks	412	294	118
TOTAL	$ 4,271	$ 2,258	$ 2,013

Numbers in rows and columns may not equal totals due to rounding.

Preliminary analysis of all jurisdictions' data indicates the following:

- Many jurisdictions (195, or 43 percent) report that they will have no shortfall either because they have no critical needs for the next five years or because they expect to be able to fully fund all needed projects.
- Nearly three quarters of the jurisdictions without a projected shortfall are water, sewer and other special purpose districts.
- Only 22 percent of the cities report no shortfall. These are predominantly small towns, but include some medium-sized suburban cities.
- The two counties which report no shortfall, Lincoln and Wahkiakum, are predominantly rural counties with small populations.
- 260 jurisdictions anticipate funding shortfalls which range from $1 to to as high as $27,000 per household for the five-year period.

- For counties, nearly 80 percent of the aggregate shortfall is in road projects. However, the nine counties with the largest shortfalls tend to have multiple problems, e.g., underfunded water, sewer, and road projects.

- For cities, slightly less than half of the aggregate shortfall is attributable to street and road projects; most of the remainder is spread fairly evenly among bridge, water system, sanitary sewer and storm sewer projects.

- Unfunded dam projects represent a very small portion of the total shortfall, less than 1 percent, for all jurisdictions.

- Nearly one half of the aggregate shortfall is distributed among five cities and five counties which generally are among the largest in the state.

Table I.B-2 below shows the distribution of total project costs, available funding and the shortfall for state facility critical needs.

Table I.B-2: TOTAL STATE JURISDICTION PROJECT COSTS, AVAILABLE FUNDING AND FUNDING SHORTFALL: 1984-88 ($ in millions)

Public Works Category		Project Costs	Available Funding	Funding Shortfall
Highways, Bridges		$ 2,304.0	$ 2,151.0	$ 153.0
Dams		.6	.4	.2
Parks and Recreation Facilities:	1984	60.7	1.9	58.8
	1985-88	19.7	(see note)	
TOTAL		$ 2,385.1	$ 2,153.3	$ 212.0

Note: Information on park and recreation funding and projected shortfall for the 1985-88 period is not currently available.

Numbers in rows and columns may not equal totals due to rounding.

I.C: Recommendations

This section presents a broad menu of alternatives for improving state and local ability to fund and manage public works projects in the State of Washington. To a large extent, the recommendations summarize the deliberations of the Public Works Advisory Board. This board was appointed by the Planning and Community Affairs Agency to guide the staff on the development of The Washington State Public Works Report and to provide a broad perspective on many of the issues raised in the course of this effort. Members included local government leaders and representatives of the business, finance, labor and engineering communities (a complete listing of the Public Works Advisory Board is included with the acknowledgments).

The list of recommendations is by no means exhaustive. Many of the alternatives are simply "appetizers" intended to stimulate creative thinking and new approaches to complex problems that have been indicated by the public works data. The development of "main courses" or broad-based state policy and long-range solutions logically should follow rather than precede a thorough analysis and lively debate of the findings of The Washington State Public Works Report by the legislative and executive branches, local officials and local government associations, technical groups, and, finally, the citizens who pay for and depend on public facilities.

As required by the enabling legislation, this section includes financing recommendations and a proposal for establishing an ongoing evaluation system with periodic updates of state and local public works information. In addition, the Public Works Advisory Board has developed recommendations for a local capital planning education program and a review of standards and regulations pertaining

to public works. All recommendations in this section are numbered sequentially for easy reference.

It should be noted that all recommendations do not necessarily have the unani-
nous endorsement of the members of the Public Works Advisory Board, nor do they
necessarily represent the policy of the Planning and Community Affairs Agency.
o the greatest extent possible, they represent the spirit and consensus of the
ublic Works Advisory Board.

inance

e to financial and economic conditions throughout the state, many communities
y be unable to respond to the apparent backlog of critical public works needs.
is suggests that some form and amount of state assistance may be appropriate
d necessary. On the basis of state history, the most probable source of funds
uld be state-issued general obligation bonds supported by various forms of
ate revenues. However, it has been strongly suggested by several members of
: finance community that the prospective market for new Washington State debt
reasonable interest rates may be constrained well below needed amounts.

addition, several issues complicate the use of state general obligation bonds
public works. These include:

- determining a reliable source of revenue for repayment of these bonds. The excess levy associated with the state portion of the property tax and a portion of the sales tax surcharge due to expire next year have both been mentioned, though not without acknowledging substantial controversy;

- accommodating the constraints of the state debt limits;
- selecting criteria for the distribution of these funds that accommodate the uneven distribution of population and needs throughout the state. Previous formulae have been unpopular because they shift tax funds from metropolitan to non-metropolitan areas or they tend to reward communities that seem to purposely neglect their public works but can demonstrate the most "critical" conditions;
- designing an efficient and effective process for distributing funds. Most state funding programs tend to require a specialized state bureaucracy which is often regarded with great distrust by local government; and
- counteracting the lack of funding stability. Once the proceeds of most state public works bonds are distributed, the programs disappear within a few years. Deserving communities which fall just below eligibility cut-offs can hope only for the future passage of another state public works bond issue or for a Federal grant which may prove to be elusive.

The Washington State Public Works Report does not address any of these issues in detail. However, if the Legislature determines that state assistance is appropriate, then the criteria for state assistance for local public works should include the following:

- local ability to finance additional capital, operations and maintenance expenses;
- significant local participation in financing capital improvements as a precondition of state grants or loans;

- local maintenance commitment and effort for all new and existing facilities;
- equitable and realistic user rates;
- adequate financial planning and budgeting for future capital projects and maintenance.

promote the greatest efficiency and long-term stability of state funding, a mbination grant and revolving loan fund program may hold the most promise. e establishment of a revolving loan fund for local public works improvements so would improve Washington State's readiness to accept and make use of poten- al Federal funds. Such funds may be available if Congress enacts any of veral current proposals emphasizing low or no interest loan programs instead matching grants as the main financing tool for local public works (see Part III financing innovations in other states).

general, the Public Works Advisory Board favored methods of financing that ain local control and minimize state involvement and bureaucracy. The ap- aches that met with the most enthusiastic response were those which would rove local governments' ability to finance infrastructure improvements on ir own. This is consistent with a preliminary interpretation of the data t suggests that a significant portion of the critical needs throughout the te can be managed most effectively on a local self-help basis with some itional statutory flexibility and taxing authority.

:ific financing recommendations are as follows:

1. Statutory amendment to permit refunding and advance refunding of Local Improvement District (LID) bonds.

Refunding authority is available for most types of tax-exempt debt in the State of Washington, and permits an issuer to redeem an outstanding bond issue with a new bond issue under conditions (e.g., lower interest rates) that are more favorable. The omission of this authority for LID debt is an unnecessary penalty in light of fluctuating market conditions.

2. Statutory amendment to permit cities and counties to collect an additional 1/4 percent real estate excise tax on a local option basis. Consistent with RCW 82.46.030, these funds would be designated for local capital improvements.

   In 1982, the Legislature passed the first optional 1/4 percent excise tax on the sale of real property to help cities and counties partially compensate for the reduction of certain developer fees for public works. Currently, 68 cities and towns and 13 counties make use of this tax.

3. Statutory amendment to expand local non-voted general obligation debt capacity from the statutory three-quarters of one percent limit to the Constitutional 1.5 percent limit, exclusive of the statutory limit for voted general obligation debt. This increment would be used, on a local option basis, solely to provide additional security for revenue-backed debt issued on behalf of local enterprise funds for water, sewer, drainage, solid waste and other specific utilities. The bonds would be backed by both the revenue stream from user fees and the full faith and credit of the jurisdiction.

   This change would enable local jurisdictions to take advantage of the lower interest rates, marketing costs and higher bond ratings generally

associated with general obligation debt, in contrast to revenue bonds. This type of general obligation debt would require an internal covenant between the jurisdiction's enterprise fund and its general fund which specifies coverage conditions and other requirements normally associated with revenue bonds.

4. State Guaranty Fund for debt issuances by Local Improvement Districts. Despite typically solid security, LID bonds are said to be penalized an average 50 to 75 basis points (one basis point is equal to 1/100 of 1 percent of interest) in terms of extra interest costs because of their uneven revenue stream and call provisions (which give the issuer the option to retire the bonds before maturity) and their relative obscurity in the national market. If the state were to commit a certain amount of funds (estimated in the range of $5-10 million) as formal security to even out local LID cash flow, both the interest rate and the overall attractiveness of this form of debt would be enhanced. The state would not pledge its full faith and credit on behalf of LID debt, but only the amount in the guaranty fund.

5. Local Finance Cooperative

The public works debt financing needs of some small communities in the state (as well as many individual LID issuers) are too small to attract sufficient attention to gain competitive rates. Yet the costs associated with the transaction and issuance of these small issues may be as high as those of much larger issues. In the absence of marketability, small issuers often are dependent on private placement with local financial institutions or individuals. This often results in higher rates than those available in a broader market.

It is recommended that the Legislature consider the formation of a state-sponsored Local Finance Cooperative. This would be backed by an initial appropriation as a guaranty fund, but not by the full faith and credit of the state. The Cooperative periodically would combine small local issuances of similar types to provide instruments of sufficient size to be competitive in a larger market than that available for any individual issue. All of the transaction and issuance costs, including bond counsel, would be borne by the Cooperative. Administrative costs of the Cooperative should be minimal and largely covered by earnings from investment of the guaranty fund.

The relationship between the Cooperative and the local government would be a loan arrangement; the security pledged by local government would be that portion of its entitled share of state revenues sufficient to cover the debt.

It was the general consensus of the subcommittee that most Washington localities can borrow as easily or more easily than the state, therefore minimizing the need for centralized state borrowing on behalf of municipalities. State aid to provide stronger local borrowing capacity through a cooperative should be invoked only where there is a special need.

6. Municipal Debt Information Service

To assist small communities which do not have technical staff or an ongoing financial advisor, it is proposed that the state provide a municipal debt information service. This service need consist of no more than one or two professional staff with clerical support, possibly in conjunction with the management of a LID guaranty fund and/or the local

Finance Cooperative. Its purpose would be to:

a. answer questions on local finance alternatives and market conditions;

b. suggest appropriate types of financial services and explain basic procedures for the preparation of debt issuance;

c. prepare and distribute training materials and newsletters; and

d. gather information on local debt or market conditions, as needed.

7. Refinement of Local Improvement District Laws

The finance subcommittee favors the careful research and redrafting of laws relating to special assessment districts, including but not limited to local improvement districts, utility local improvement districts and road improvement districts. The statutes concerning the formation of such districts, and the confirmation of their assessment rolls, differ among various kinds of municipalities. This creates confusion for both local officials and citizens. The statutes which create such districts are excessively complicated, hindering the formation of such entities, and making it all the more difficult for citizens to effectively participate in deliberations on the formation of new LID's. The subcommittee believes that the laws for forming special assessment districts of various kinds should be consolidated, or, alternatively, a new statute for forming such districts should be enacted. In order to prevent disruption in the market, such legislation would provide an alternative but not exclusive method for establishing special assessment districts. Because of the legal complexity of the existing statutes the redrafting of special benefit assessment legislation must

be done with great care by people experienced in the field.

8. Modification of the 106 percent levy lid

The 106 percent levy lid has substantially restricted tax revenues and the ability of local jurisdictions to issue councilmanic general obligation debt on their own. While total lid removal is not feasible, the subcommittee recommends that the Legislature consider modifying RCW 84.55.050 to allow localities to go above the lid up to the statutory maximum levy rate for limited periods of time for specific categories of capital improvements. This would enable local legislative bodies to fund specific public works projects on a pay-as-you-go basis or by tying excess levy proceeds to the repayment of councilmanic bonds.

Even if the lid were reinstated within a limited period, the excess levy would provide an essential catch-up fund to counteract some of the effects of the gradual disinvestment in public works.

9. Other Legislative Matters

The subcommittee also favors the enactment of a constitutional amendment allowing Community Redevelopment Financing (tax increment financing). This would be an important and useful addition to existing tools for locally-controlled financing of public works improvements.

The Legislature should act favorably upon a technical amendment to state law that would increase the ability of certain local governments to better use existing financial resources. Under RCW 35.22.380, a first class city's water utility is currently unable to reprogram water revenue bond proceeds without a public vote to revise the city's comprehensive water plan, despite the fact that those revenue bonds were

originally authorized without a vote. Amendment of RCW 35.22.380 would permit more flexible use of existing city water capital funds for needed improvements.

A great number of other ideas were considered by the subcommittee, but are not included in this report as recommendations. For example, various "creative finance" measures, such as zero-coupon bonds, sale/leaseback, bond insurance, and privatization, may have merit but tend to represent highly individualized approaches that are appropriate only for unique situations. In some cases, they may also communicate an impression of financial weakness.

The formation of a state infrastructure bank (essentially a revolving low-interest loan fund for public works) was not endorsed at this time because of considerable uncertainty about appropriate methods of capitalization and distribution as well as local willingness and capacity to repay such loans. If circumstances change as a result of further analysis and policy debate, or if the Federal government should move to provide capital for infrastructure banks, such an institution might be appropriate and desirable for the state of Washington. Financing a full measure of the state's public needed works projects will require flexibility to quickly adapt to changing conditions.

ngoing Evaluation System

he Public Works Inventory Project was organized by the Planning and Community ffairs Agency to prepare The Washington State Public Works Report for the Legislature. Due to the tremendous support of hundreds of state and local officials and professionals associated with public works, this project has been able generate a significant amount of new information about the state's public cilities, and also a heightened awareness about the importance of public

facilities at the local level. For some communities, the survey is serving as first step toward a more comprehensive public works needs assessment and the development of a capital planning and budgeting process. This self-help spirit may be one of the most significant outcomes of the project and a major factor in solving many of the state's complex public works problems.

The 87 percent survey response rate by local governments, combined with the information provided by state agencies, has provided a voluminous data base. While the report attempts to present a preliminary assessment and interpretation of the data, the relationships are exceedingly complex and demand much greater scrutiny. The potential for further substantive research on the dimensions of critical public works needs and the causes of the shortfall is clearly evident. For example, an analysis of the distribution of user fees, local tax rates, and various economic and demographic conditions in relation to the shortfall may be useful in the development of an equitable and effective state capital investment strategy as well as specific standards and criteria for allocation and distribution of potential new state or Federal funds.

Additional information is necessary to understand the full scope of state and local public works needs, especially in terms of accurately gauging available financing resources. Many local officials have been critical of the absence of certain key public works from the survey, such as solid waste disposal, public buildings, and irrigation systems. Other functions which are part of the state's infrastructure, such as mass transit, airports, waterways and rail transport facilities, also have been suggested for inclusion. The absence of information on the needs of these other important facilities may distort the true picture of financing resources available for public works in any given jurisdiction. However, the most consistent argument was not for inclusion of any particular item as much as for the recognition that other public facility

needs exist and must compete for the same scarce resources.

Specific recommendations aimed at an ongoing evaluation system include:

10. The Public Works Inventory should be updated on a biennial basis and submitted to the Legislature at the beginning of the state fiscal year, beginning in July, 1986. This will allow time for review prior to the January Legislative session, and facilitate use of report information in the annual local government budget process. A 12-month study period should be allocated for each biennial update.

11. The periodic updates to the current Public Works Inventory should be based on data from both state agencies and local jurisdictions and should specifically monitor progress by jurisdiction and public works category, on completion of critical projects, types of financing used, and capital investment trends over time.

pital Planning

pital planning offers no magic remedy to public works problems, but it may ert some of the expensive mistakes that are frequently the result of crisis nagement. It also helps local officials think through complex economic velopment and financial decisions. The failure to plan virtually assures that arce resources will be consumed in reacting to crises and that crucial facili- es continue to deteriorate. This cycle places the costs of deterioration on ture generations, and may contribute significantly to the eventual cost of the ded projects.

The basic elements of a capital planning document include:

- an assessment of the condition of existing facilities and their capacity to meet the needs of current and future populations;
- an analysis and comparison of future costs and benefits associated wi alternative projects;
- an evaluation of alternative methods of project financing;
- an analysis of the financial effect of public works projects on futur operating budgets; and
- an evaluation of the possible impact and implications of not investing in specific projects.

Most privately-owned utilities must pay careful attention to depreciation, replacement reserves and rates of return to protect the integrity of their systems and to ensure continued profits to their investors. They must be atten tive to the optimal level of maintenance and replacement in order to minimize long-run costs. Thus, the profit motive provides their incentive to plan carefully for the future.

Sound business practices are just as important to the management of public facilities as they are to investor-owned utilities. However, very few jurisdictions in the State of Washington appear to have a systematic process for evaluating future public works needs, and planning and budgeting for the major expenditures involved in maintaining and expanding current facilities. In fact, completion of the Public Works Survey may represent the initial step in this process for many small jurisdictions.

Some long-range capital planning is required for nearly all jurisdictions,

usually as a condition imposed by various state regulatory or funding agencies. Examples include the Six-Year Street Plan required of all recipients of state and Federal street, road and bridge funds by the Department of Transportation, and the Five-Year Comprehensive Water Plan required by the Department of Social and Health Services for all water supply systems serving more than 1000 customers. In addition, special purpose districts are required by statute to have comprehensive plans. Although local jurisdictions have been required to show financial capability on a project basis as a condition of grant assistance, few have included long-range finance strategies in their comprehensive plans. And even fewer have addressed how planned projects will be maintained over their useful life.

Incentives and training are needed to encourage local officials to undertake long-range financial and capital planning. Support is especially important for smaller jurisdictions with limited staff resources.

A specific recommendation to facilitate this type of planning is as follows:

12. The Planning and Community Affairs Agency should design and implement a capital planning education program by October 1, 1984. This effort should be undertaken in collaboration with appropriate state agencies, local government officials and associations and representatives of the business community. The program should include:

    a. capital improvement program training, through the Planning Short Course approach, for local officials in decentralized regional workshops held at regular intervals
    b. written educational materials and guidebooks
    c. ongoing technical assistance as a follow-up to the regional workshops

    d. a public education component to help local officials inform the public on both local and statewide public works issues

In the course of the design of this program, consideration should also be given to the development of recommendations for changes in state requirements for local planning. One approach would be to prescribe long-range capital planning as a component of any physical planning effort. Another might be to make future receipt of state grants or other outside funds contingent upon the existence of a local capital plan.

Standards and Regulations

During the course of the Public Works Inventory Survey, many local officials expressed their observations and complaints about the high cost of meeting Federal and state mandated standards and regulations. Nearly everyone had a local example to demonstrate the burden or perceived inappropriateness of various rules. A widely-held opinion was that careful review and revision of standards and regulations would significantly reduce the cost of public works projects and, therefore, the financing shortfall.

At present, the basis for this perception appears to be largely anecdotal; opinions are based on personal experience rather than on objective data or rigorous cost-benefit analyses. Nevertheless, concern about the content and application of standards and regulations is strongly felt throughout the state and the entire country. This feeling has become even more intense in recent years in light of the reduction in and unpredictability of Federal funding to assist local compliance efforts.

A recent study of national infrastructure needs commissioned by the Joint Economic Committee of the Congress (to be published in January 1984) is expected to include a major recommendation on standards. This recommendation has been reviewed and endorsed in the following draft form at the December 15, 1983 meeting of the National Infrastructure Advisory Board appointed by the Joint Economic Committee:

> Congress, through a prestigious group such as The National Academy of Sciences, should initiate a comprehensive study of standards governing development of basic infrastructure. The analysis, at a minimum, should encompass:
>
> - an inventory and comparative analysis of Federal, state and local government standards by infrastructure category;
> - an evaluation of the relationship of standards to varied economic, social and environmental benefits and costs; and
> - an analysis of the opportunity costs (or the difference between the best choice and any alternative course of action) associated with options concerning amendments to or reductions of standards.

A specific recommendation which endorses this approach at the national level and provides a parallel and perhaps complementary effort at the state level is as follows:

13. The Governor should consider appointing a Blue Ribbon Task Force on Public Works Facility Standards and Regulations. The membership should include highly-respected individuals in the engineering and economics professions, state and local government, labor, business and others as necessary. This Task Force should undertake an analysis with the same basic components as outlined for the national study. Staffing and support for this effort would be provided by the Planning and Community Affairs Agency. It is further recommended that a report on standards and regulations be prepared and submitted to the Governor no later than July 1, 1985.

PART II: REVIEW OF LOCAL PUBLIC WORKS NEEDS AND PROJECTED SHORTFALLS

II.A: Review of Local Data

Local governments in Washington report nearly $4.3 billion of critical needs over the next five years for streets and roads, bridges, sanitary sewers, storm sewers, water systems, dams, and parks and recreation facilities. Projects range from repair and reconstruction of existing facilities to new construction. These governments, as a group, expect to finance about $2.3 billion, or 53 percent, of their critical needs from available sources, leaving a funding shortfall of slightly over $2 billion. Table II.A-1 shows total project costs, anticipated funding and funding shortfall by public works category, for each type of local jurisdiction surveyed.

The largest critical need is for street and road projects. Representing 44 percent of total local project costs, street and road repair, reconstruction and new construction needs are estimated at just under $2 billion.. Next, sanitary and storm sewer projects, largely for new interceptors and treatment systems, account for 26 percent of total needs with a projected cost of over $1.1 billion. Bridges, water systems, and parks and recreation projects, each requiring less than $500 million, together comprise 29 percent of total costs. Finally, dam projects represent a relatively small sum of less than one percent of total costs.

Funding shortfalls are not distributed evenly among local jurisdictions. Of those surveyed, 195 (43 percent) report that they anticipate no shortfall either

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Table II.A-1: TOTAL LOCAL JURISDICTION PROJECT COSTS AND FUNDING SHORTFALL, BY PUBLIC WORKS CATEGORY: 1984-88
($ in 000's)

Type of Jurisdiction	Roads			Bridges			Water Systems		
	Project Costs	Funding Shortfall	Percent	Project Costs	Funding Shortfall	Percent	Project Costs	Funding Shortfall	Percent
Counties	$ 893,583	$ 507,865	57%	$127,630	$ 38,754	30%	$ 6,109	$ 146	2%
Cities	996,774	555,431	56	262,287	180,695	69	336,112	114,875	34
Irrigation Districts	0	0	-	0	0	-	4,064	1,840	45
Ports	3,337	2,419	72	0	0	-	2,431	689	28
PUD's	0	0	-	0	0	-	23,194	6,723	29
Reclamation Districts	0	0	-	0	0	-	2,205	278	13
Sewer Districts	0	0	-	0	0	-	450	0	0
Water Districts	0	0	-	0	0	-	55,887	11,491	21
TOTAL	$1,893,693	$1,065,715	56%	$389,917	$219,449	56%	$430,452	$136,042	32%

Numbers in rows and columns may not equal totals due to rounding.

Table II.A-1: continued

Type of Jurisdiction	Sanitary Sewer Systems			Storm Sewers			Dams			Parks and Recreatio		
	Project Costs	Funding Shortfall	Per-cent	Project Costs	Funding Shortfall	Per-cent	Project Costs	Funding Shortfall	Per-cent	Project Costs	Funding Shortfall	P c
Counties	$ 73,596	$ 30,593	42%	$ 71,402	$ 63,363	89%	$ 2,145	$1,958	91%			
Cities	648,152	210,223	32	208,582	152,447	73	38,455	6,831	18	(see note)		
Irrigation Districts	0	0	-	0	0	-	600	0	0			
Ports	4,105	1,433	35	940	109	12	0	0	0			
PUD's	1,702	1,611	95	0	0	-	2,610	0	0			
Reclamation Districts	0	0	-	0	0	-	0	0	0			
Sewer Districts	79,458	4,932	6	0	0	-	0	0	0			
Water Districts	13,431	670	5	0	0	-	0	0	0			
TOTAL	$820,444	$249,462	30%	$280,924	$215,918	77%	$43,810	$8,789	20%	$411,985	$117,588	

Note: Distribution of parks and recreation project costs and shortfall by type of jurisdiction is not currently available.

Numbers in rows and columns may not equal totals due to rounding.

because they have no projects planned within the next five years (78 jurisdictions) or they expect adequate funding to be available (117 jurisdictions).

Table II.A-2 shows the ranges of funding shortfall by type of jurisdiction. Of those reporting critical needs from 1984-88, nearly 80 percent of cities and all but two counties project a funding shortfall while only 25 percent of water and sewer districts find themselves in a similar circumstance.

Viewed from the standpoint of dollar size, 18 of 218 cities and 14 of 39 counties anticipate shortfalls in excess of $10 million, while only 8 of 120 special purpose districts have shortfalls in excess of $1 million and none reach the $10 million level. On a per capita basis 260 jurisdictions anticipate funding shortfalls which range from $1 to as high as $27,000 or more per household for the five-year period. Perhaps more significantly, as shown by Table II.A-3, only 10 jurisdictions (five cities and five counties) account for 49 percent of the total shortfall reported by all survey respondents. This seems to imply that the shortfalls generally represent smaller and more manageable amounts for most government units. If so, while the problem is real and of significance to those involved, it is not yet a crisis for most and can be solved without dramatic measures.

Table II.A-2: TOTAL PROJECT FUNDING SHORTFALL DISTRIBUTION, BY NUMBER OF JURISDICTIONS: 1984-88

Type of Jurisdiction	# Jurisdictions Reporting*	Dollar Range of Funding Shortfall: No Shortfall	$100,000 or less	$100,000 to $500,000	$500,000 to $1 m	$1 m to $10 m	$10 m to $50 m	Over $50 m
Counties	39	2	0	4	1	14	14	4
Cities	218	39	33	31	19	74	18	4
Irrigation Districts	14	7	2	5	0	0	0	0
Port Districts	13	4	2	3	2	2	0	0
FUD's	14	7	0	3	2	2	0	0
Reclamation Districts	3	2	0	1	0	0	0	0
Sewer Districts	16	12	0	2	1	1	0	0
Water Districts	60	44	4	8	1	3	0	0
TOTAL	377	117	41	57	26	96	32	8

*Refers only to jurisdictions reporting projects.

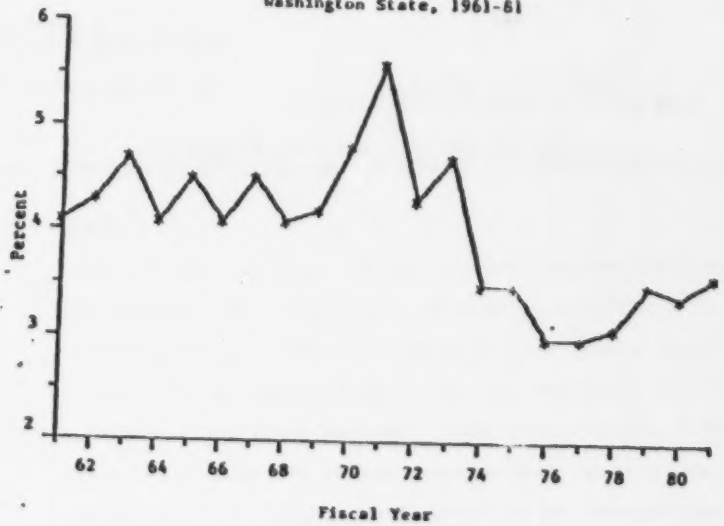
Table II.A-3: JURISDICTIONS WITH THE LARGEST REPORTED TOTAL FUNDING SHORTFALLS
($ in 000's)

Jurisdiction	Amount
1) Seattle	$ 338,965
2) Spokane	144,077
3) Pierce County	94,382
4) Snohomish County	82,775
5) Tacoma	67,740
6) Vancouver	62,634
7) King County	60,602
8) Clark County	55,998
9) Thurston County	41,669
10) Bellevue	36,597
TOTAL, 10 Jurisdictions	$ 985,439
TOTAL, All Jurisdictions	$ 2,013,000

II.B.1: Analysis of the Shortfall - Economic Considerations

Washington State and local capital outlays have shown an unmistakable downward trend in the past 20 years. As illustrated in Figure II.B.1-1, capital outlays[1] have declined from an average of 4.3 percent of personal income during the 1960's to about 3.3 percent since 1975.[2]

Figure II.B.1-1: STATE AND LOCAL CAPITAL OUTLAYS RELATIVE TO PERSONAL INCOME
Washington State, 1961-81

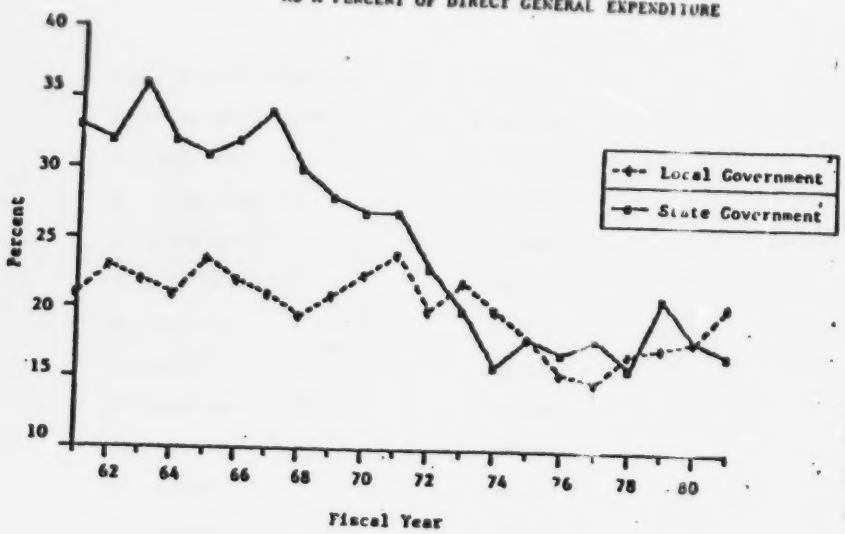


1 General government capital outlays are defined by the Bureau of the Census to include highways, roads, streets, bridges, educational, sewerage, health and hospital facilities, and other structures, excluding outlays by public utilities.

2 U.S. Bureau of the Census, Governmental Finances in 1980-81, and preceding annual issues, Series GF81, No. 5.

This decline is also apparent when comparing Washington State and local capital outlays as a percentage of direct general expenditures. As shown in Figure II.B.1-2, Washington State capital outlays have fallen from an average of 32 percent of direct expenditures during the 1960's to about 18 percent over the past five years. For local government, the corresponding ratios have also declined from 22 to 17 percent.

Figure II.B.1-2: WASHINGTON STATE AND LOCAL CAPITAL OUTLAYS AS A PERCENT OF DIRECT GENERAL EXPENDITURE



There is no simple explanation for this historical decline or for the apparent failure of government outlays to keep pace with the state's capital spending needs. The forces which determine public capital spending are complex, the agents are numerous and there is no common standard of need. While conclusive research is needed, some of the more plausible theories on causes of the gap

between infrastructure needs and resources in Washington State are as follows:

- Scarce resources and changing priorities

  Public capital spending is being crowded out by competing demands for available funds by less capital-intensive uses such as criminal justice, health care, and social services. Annual growth rates of general expenditures for Washington State and local governments during the past decade are shown by function in Table II.B.1-1. During this period general government expenditures have risen an average of 11 percent annually, while those for capital-intensive uses have expanded at slower rates.

Table II.B.1-1: ANNUAL GROWTH RATES OF GENERAL EXPENDITURES, BY FUNCTION, FOR WASHINGTON STATE AND LOCAL GOVERNMENTS

Functional Category	Annual Average Expenditure Growth Rates FY 1970/71 to FY 1980/81
Highways, streets, roads and bridges	8.2%
Sewage	10.3
Education	10.8
Health and hospitals	16.1
All other functions*	11.9
TOTAL	11.0%

*Includes direct general expenditures for libraries, public welfare, social insurance administration, veterans services, air and other transportation, public safety, environmental and housing (except sewage), governmental administration, interest on general debt, and other general expenditures.

Source: Governmental Finances in 1980-81, Governmental Finances in 1970-71.

- Insufficient expansion of revenue sources

The multiplicity of tax limitation measures in this state during the past decade and the recent decline in federal aid to state and local government have diminished the growth of general revenue sources available to fund government. Faced with competing demands and scarce resources, state and local officials have deferred capital outlays (the consequences of which are not immediately visible) in order to provide a remedy for immediate budget shortfalls.

- Effects of inflation

Even though actual dollar amounts for public capital outlays have increased steadily throughout recent history, these increases have not kept up with the 10 percent overall rate of inflation. In fact, the inflation rate for capital structures was actually closer to 15 percent, as shown by selected price indexes.[3]

- Effects of interest rates

Rising interest rates on municipal bonds (including state bonds) in the 1970's have led some local governments to delay capital projects. Although rapid inflation reduced the real interest rates (actual rate minus inflation) in the 1970's, higher actual rates have required more current dollars to meet debt service costs. Few jurisdictions have been willing to seek the high taxes or make large reductions in other expenditures necessary to pay higher interest rates in a period when real per capita income has been growing slowly, if at all. Thus, high interest rates may have reduced capital expenditures as a share of total revenues.

- Long cycle in capital outlays

Decline in real capital outlays in the 1970's may be the product of a long cycle in population growth and highway construction. Capital outlays for education were unusually high in the 1960's as a result of the preceding baby boom. The Interstate Highway Construction Program also crested about the same time. This wave of public capital outlays diminished the need for new construction in the 1970's but meant that capital maintenance and replacement needs expanded in the 1980's as a result of the earlier construction boom.

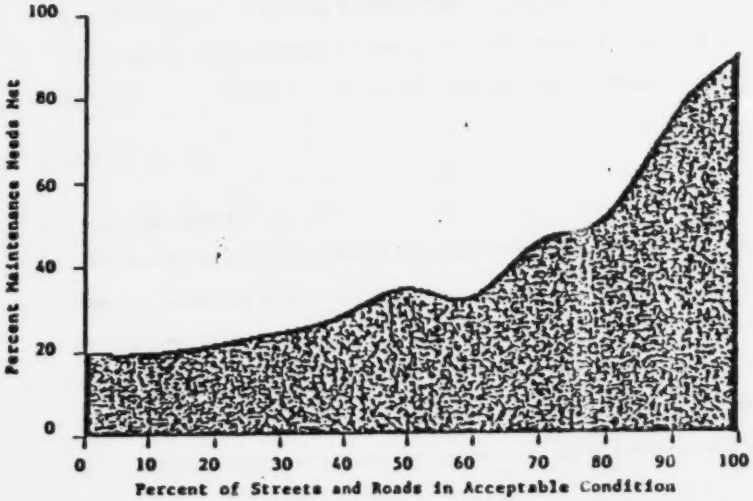
Whatever the reasons for this decline in expenditures for public capital, it represents a serious trend from the standpoint of economic growth. Public infrastructure investment allows and promotes the productivity of private investment in plant and transportation equipment. It provides the underlying structure necessary to house and maintain a labor force. This complementary nature of public and private investment in fostering and maintaining economic growth underscores the importance of stable public capital outlays.

[3] U.S. Department of Commerce, The National Income and Product Accounts of the United States, 1929-76, Statistical Tables, A Supplement to the Survey of Current Business. September 1981. Updates published in the Survey of Current Business.

II.B.2: Facility Maintenance

Routine maintenance is widely known to prolong the life of public facilities and to improve their operational efficiency. Results of the Public Works Inventory Survey indicate a strong correlation between the percentage of maintenance needs being met and the condition of public facilities. On the average, those jurisdictions which claim to accomplish a greater percentage of maintenance also report a larger portion of their facilities to be in acceptable condition. Using street and road data from the survey, Figure II.B.2-1 shows that the percentage of streets and roads in acceptable condition increases as the percentage of maintenance accomplished increases.

Figure II.B.2-1: RELATIONSHIP OF MAINTENANCE TO CONDITION: STREETS AND ROADS



Between 1978 and 1983 the amount of maintenance performed on the public works systems surveyed increased slightly. Water systems, sewer systems and dams accomplished approximately 72 percent of their maintenance needs in 1978, and 79 percent by 1983. Bridges show a similar increase, from 52 percent in 1978 to 57 percent in 1983. Streets and roads, on the other hand, show a decrease of 4 percent during the same period, from 53 percent in 1978 to 49 percent in 1983. Given the relationship illustrated in Figure II.B.2-1 and the relative importance of the streets and roads system, this decrease is alarming.

Table II.B.2-2 lists, by type of jurisdiction and public works category, the number which could and could not meet 80 percent of their maintenance needs in 1983. It is important to note that fewer jurisdictions with street and road systems can meet 80 percent or more of their maintenance needs than for any other system.

II.B.3: Population Growth

Rapid population growth in certain parts of the state has been postulated to be a significant factor in the respective funding shortfalls in those areas. However, a comparison of each jurisdiction's growth rate over the past decade with funding shortfalls, maintenance levels, and condition of facilities revealed no such relationship.

While additional research is needed, these preliminary results may indicate that growing systems are newer and that additional taxes and user fee revenues from new residents increase available funding. Growing systems may also tend to be better managed. Nevertheless, population growth does not appear to be a fundamental cause of the infrastructure problem.

Table II.B.2-2: AMOUNT OF MAINTENANCE NEEDS MET IN 1983, BY NUMBER OF JURISDICTIONS

Type of Jurisdiction	Streets and Roads		Bridges		Water Systems		Sewer Sytems		Dams	
	Under 80%	80% or More	Under 80%	80% or More	Under 80%	80% or More	Under 80%	80% or More	Under 80%	80% or More
Counties	32	7	25	13	0	7	6	11	1	3
Cities	167	53	56	43	81	118	79	106	8	15
Irrigation Districts	-	-	-	-	5	15	0	1	1	6
Port Districts	8	5	0	1	2	5	1	6	-	-
PUD's	-	-	-	-	6	8	0	2	0	8
Reclamation Districts	-	-	-	-	0	3	0	1	-	-
Sewer Districts	-	-	-	-	0	1	10	24	-	-
Water Districts	-	-	-	-	13	69	3	17	-	-
TOTAL	207	65	81	57	107	223	99	168	11	32
Percent of Total in 80% or More Category	25%		43%		68%		63%		74%	

II.B.4: User Fees

Many individuals have speculated that the combined shortfall for water, sewer and other rate-based public utilities revealed in this report represents operations that have set rates (or user fees) too low to adequately cover costs of service, including capital maintenance and replacement. The range and distribution of current water and sewer rates for approximately 200 Washington jurisdictions* are presented in Table II.B.4-1 and Table II.B.4-2. Unfortunately, without detailed information on operational costs, it is extremely difficult, if not impossible, to determine the adequacy of any system's rates. Tests to explore relationships between rates and the condition of systems have been inconclusive except to point out the need for further research.

Rate-based public utilities are generally distinguished financially from other public facilities, such as roads and bridges, which rely on general taxation. Under Washington State law, as prescribed by the State Auditor in the Budget, Accounting and Reporting System (BARS), accounting for public utilities must be conducted through separate accounts known as enterprise funds which are separated from current expense and other funds of general government. The intent is to have enterprise accounts managed as business-like undertakings and financed largely through customer charges.

This intent is somewhat complicated by the fact that other groups (such as property owners or society in general) may benefit substantially from provision of the utility service (such as from fire protection or the preservation of health and sanitation needs). There is no generally accepted procedure for allocating these external benefits or apportioning the costs, yet their

* Information on current water and sewer rates is based on a recent survey conducted by Gardner Engineers, Inc. of Seattle.

Table II.B.4-1: DOLLAR RANGE OF WATER SYSTEM USER FEES,* BY NUMBER OF JURISDICTIONS: 1983 RATES FOR RESIDENTIAL CUSTOMERS

Type of Jurisdiction	# Jurisdictions Reporting	Rates Per 1000 Cubic Feet of Water Used					
		$1 to $4.99	$5 to $6.99	$7 to $8.99	$9 to $10.99	$11 to $12.99	$13 Over
Cities	92	7	12	32	20	11	10
Water Districts	23	0	2	3	8	7	3
Other Jurisdictions	5	0	1	3	0	1	0
TOTAL	120	7	15	38	28	19	13

Table II.B.4-2: DOLLAR RANGE OF SEWER SYSTEM USER FEES,* BY NUMBER OF JURISDICTIONS: 1983 RATES FOR RESIDENTIAL CUSTOMERS

Type of Jurisdiction	# Jurisdictions Reporting	Monthly Rate Per Service Connection					
		$1 to $4.99	$5 to $6.99	$7 to $8.99	$9 to $10.99	$11 to $12.99	$13 & Over
Cities	93	13	25	21	20	9	5
Sewer Districts	4	0	0	1	1	1	1
Water Districts	13	0	0	3	4	4	2
Other Jurisdictions	2	0	0	0	0	1	1
TOTAL	112	13	25	25	25	15	9

*Preliminary data from rate survey of Washington State jurisdictions conducted by Gardner Engineers, Inc., Seattle, October 1983. Survey respondents did not differentiate between rates including debt reduction and those based strictly on service charges.

existence makes it difficult to argue that rates should necessarily cover all costs. Moreover, while state law requires that capital assests be depreciated on the books, it does not require that such depreciation be funded through user fees. Indeed, given that much of the capital plant is funded by borrowing and that replacement can be funded by debt, it is not clear if or how much depreciation should properly be funded by customer charges. Any conclusions on the operation and management practices of rate-based municipal utilities awaits much further research.

II.B.5: Volume and Limitations of Local Government Debt

Outstanding local government debt of the 439 jurisdictions reporting this information in the Public Works Inventory Survey totals $3.5 billion. Table II.B.5-1 displays the distribution of outstanding debt by type and size of jurisdiction.

The preponderance of local debt in Washington State is in the form of revenue bonds. Fully 66 percent of the total $3.5 billion represents revenue bonds, compared to 26 percent for general obligation debt.

These percentages reflect the heavy use of revenue debt by Washington cities and port districts, over $1 billion in all, as well as the nearly total dependence on revenue debt by water and sewer districts. County governments, which rarely operate rate-based services such as water and sewer systems, are far more dependent on general obligation debt.

Seventy-five percent of the $570 million in total county debt represents King County's bonded indebtedness. The use of LID bonds also is heavily concentrated: Pierce County accounts for 91 percent of the use of these bonds by

Table II.B.5-1: TOTAL OUTSTANDING LOCAL GOVERNMENT DEBT (in actual $)

Type of Jurisdiction (# of Jurisdictions Reporting)	Type of Debt Outstanding: Councilmanic General Obligation	Voter-Approved General Obligation	Revenue Bonds	LID Bonds	Tax Anticipation Notes	Other Outstanding Debt
Cities (231)	$ 110,986,019	$ 323,720,605	$ 1,011,216,435	$ 100,336,358	$ 26,125,320	$ 17,001,257
Over 100,000 (3)	58,772,671	231,307,847	654,085,000	26,198,871	15,000,000	5,649,000
20,000 - 100,000 (19)	36,249,075	56,445,170	229,726,578	46,241,481	10,511,277	175,000
5,000 - 20,000 (36)	10,102,000	23,802,632	72,637,065	15,782,791	37,341	6,575,585
1,000 - 5,000 (90)	4,716,000	10,387,714	46,214,289	11,674,105	573,145	3,724,395
1,000 or less (83)	1,146,273	1,177,242	8,553,503	439,110	3,557	877,277
Counties (39)	150,331,371	285,189,169	29,483,839	72,243,062	21,100,000	11,361,122
Over 500,000 (1)	74,280,000	251,760,000	824,500	313,500	19,200,000	6,741,151
210,000 - 500,000 (3)	53,807,371	22,085,000	21,715,000	68,529,338	1,900,000	175,000
70,000 - 210,000 (7)	13,652,000	6,285,000	3,105,000	1,930,948	0	3,256,429
40,000 - 70,000 (9)	4,795,000	0	849,339	808,176	0	8,500
18,000 - 40,000 (6)	2,050,000	685,000	0	661,100	0	0
3,000 - 18,000 (13)	1,747,000	4,374,169	2,990,000	0	0	1,355,042
Water Districts (83)	91,782	205,982	70,885,642	14,950,012	0	1,564,190
Sewer Districts (33)	3,354,994	1,673,519	274,385,094	14,102,194	2,699,994	6,387,526
Ports (12)	13,071,520	303,442	27,500,000	4,545,000	340,000	1,869,260
PUD's (17)	0	0	854,369,685	225,534	0	2,678,732
Irrigation Districts (24)	1,160,410	261,985	1,409,333	0	0	1,660,824
TOTAL (439)	$ 278,996,096	$ 611,354,702	$ 2,269,254,029	$ 206,402,160	$ 50,265,314	$ 42,542,911

county governments and 32 percent of their use by all jurisdictions. LID debt accounts for 12 percent of total county debt.

In Washington State there are two types of limitations which apply to the ability of local governments and other jurisdictions to issue general obligation debt: constitutional debt limits and statutory debt limits. They apply to the total amount of debt outstanding, measured as a percentage of the jurisdiction's assessed valuation (see Table II.B.5-2 for a list of these limits).

The legal authority granted to local jurisdictions under Washington law is quite narrow; any changes in local powers concerning types of debt issued must be precisely specified in new legislation. The state's constitutional debt limits are uniform across jurisdictional types, set at 1.5 percent of assessed valuation for councilmanic (nonvoted) debt and five percent* of assessed valuation for total debt (both councilmanic and voter-approved).

Statutory limits are more complex. There is a general statute providing for debt limits (RCW 39.36 Limitation of Indebtedness of Taxing Districts) but an individual statute authorizes each type of local jurisdiction to incur a particular type of debt and specifies debt limits. In some cases, specific limits are not enumerated, and the statute refers to RCW 39.36 (the general statute). In other cases, no limits are listed, but adherence to RCW 39.36 is authorized by RCW 39.36.020, Subsection 1 (see Table II.B.5-2). The complexity of the statutes is important because of the existence of some 60 different types of special purpose districts within the state.

Because of limited tax revenues and/or the growing importance of public

*The only exception to this 5 percent limit is the case of cities and towns which own utilities. The constitutional total debt limit for these jurisdictions is 10 percent of assessed valuation.

Table II.B.5-2: WASHINGTON STATE RESTRICTIONS ON LOCAL GOVERNMENT GENERAL OBLIGATION DEBT

Type of Jurisdiction	Constitutional Limit (% of Jurisdiction's Assessed Valuation)		Statutory Limit (% of Jurisdiction's Assessed Valuation)		Voting Validation Requirements		
	Councilmanic (Nonvoted)	Total (Voted and Nonvoted)	Councilmanic (Nonvoted)	Total (Voted and Nonvoted)	Percent Favorable	Percent Turnout of Last General Election
Cities and Towns	1.5	5.0	.75	2.5	60	-
with utilities	-	+ 5.0	-	+ 2.5	60	-
with Parks	-	-	-	+ 2.5	60	-
TOTAL, Cities and Towns	1.5	10.0	.75	7.5	-	-
Counties	1.5	5.0	.75	2.5	60	40
Water Districts	1.5	5.0	.5	2.5	60	-
Sewer Districts	1.5	5.0	-	1.25	60	-
Public Utility Districts	1.5	5.0	.75	2.5	60	-
Parks and Recreation Districts	1.5	5.0	.375	1.625	60	-
Park and Recreation Service Areas	1.5	5.0	.375	2.5	Majority	-
Metropolitan Park Districts	1.5	5.0	.214	2.5	60	40
Port Districts	1.5	5.0	.214	.75	60	40
Port Districts which have an assessed valuation of less than $200 million and own an airport	1.5	5.0	.375	1.25	60	40

utilities, there has been a trend towards increased use of revenue bonds. These bonds are backed by a specific revenue stream, rather than the full faith and credit of the jurisdiction and therefore are not subject to debt limits. The growth in the use of revenue bonds by local governments in Washington State in the last decade has been dramatic. In 1970, 66 percent of all Washington State municipal bond issues were general obligation issues. In 1980, such issues made up only 30 percent of total issues, while the remaining 70 percent of new debt was in the form of revenue bonds.

As a practical matter, most local jurisdictions appear to have substantial legal capacity for the issuance of additional general obligation debt. However, the existence of "unused" councilmanic debt (also known as inside debt) capacity does not mean that it is financially prudent or even possible for a jurisdiction to issue councilmanic debt to finance infrastructure improvements.

Councilmanic debt limits are based solely on the assessed valuation of the jurisdiction, and not on the fiscal capacity of that jurisdiction to amortize debt from general revenues. Local governments characterized by high per capita assessed valuation and low per capita operating revenues probably would not have the capacity to satisfy debt service requirements without curtailment or elimination of essential functions.

Property tax revenues, a principal source of local operating revenues, have declined in importance throughout the state as a result of the 106 percent 1id on local authority to impose property taxes. As a result, it has become more difficult for councilmanic debt to be funded from current revenues. For this reason, statutory and constitutional debt limits for non-voted debt have less practical meaning now than in the past.

In the case of voter-approved general obligation bonds (G.O. bonds), effective debt capacity is determined by the voters' willingness to increase their property tax burdens and the bond market's willingness to buy the bonds. If voters feel strongly about a proposed capital improvement, they are generally willing to absorb future tax burdens to finance specific capital improvements. General obligation bonds have been a major source of financing for public facilities such as buildings, parks and recreation facilities, expensive equipment, and many types of public capital not included in this survey. The market's willingness to accept the debt is determined by its assessment of existing and future property tax burdens as well as other economic characteristics impacting the likelihood of future debt service and amortization payments.

PART III: AN EXAMINATION OF OTHER STATES' APPROACHES TO PUBLIC WORKS FINANCE

Introduction

The recognition of major public works problems throughout the nation in the past few years has spurred a wide range of innovative programs to help state and local governments react positively in the face of scarce resources. As a framework for examining some of these approaches, various options and issues regarding public works finance are outlined in this section, along with successful or promising examples.

None of these examples offer a panacea, nor are they necessarily appropriate for wholesale import to the State of Washington. They are responses to unique problems faced by other states within their own political environments. Yet they may provide fresh perspectives and certain features which may prove useful in Washington State.

This report draws heavily in terms of substance and organization on a recent study by the National Conference of State Legislatures[1] which examines state government assistance to local jurisdictions.

Supervision and Technical Assistance

Many states supervise local debt management by collecting and disseminating

[1] Watson, Rick, How States Can Assist Local Government with Debt Financing for Infrastructure".

data, prescribing the contents of official statements, or reviewing local bond issues. State supervision is aimed at the improvement of the credit market for respective local governments by enforcing standardization, increasing the availability of information, and reducing the risk of default.

Some states provide technical assistance to their local governments to enhance the technical skills of local officials and facilitate responsible debt management. Examples of state supervision and technical assistance in this area include:

- Collection of financial and other information related to local government finances (including the maintenance of central data files, and dissemination of data).
- Provision of educational materials, programs, and technical assistance in debt management and bond sales to local jurisdictions.
- Advisory review of legal and fiscal aspects of bond sales and active involvement in the preparation of bond documents.
- Mandatory approval of bond sales, often as a part of a broader supervision of local financial decisions and budgets.
- Special assistance in the event of local government financial emergencies.

Oregon provides these services through the Oregon Municipal Debt Advisory Commission which was created in 1977. All jurisdictions are required to notify the Commission before issuing new debt. The Commission also provides broad-based assistance to local jurisdictions in planning new bond issues. This is done on a request basis and generally without charge. The Commission publishes "The Oregon Bond Advisor", a monthly newsletter with information on new state law, market information and recent bond sales; "The Bond Calendar", which indicates upcoming bond sales; and a training manual for Oregon issuers, "Capital Planning and Debt Issuance". The Commission is funded by the State Treasury and currently receives no state appropriation. The Treasury supports itself through a variety of service charges to private firms for review of industrial revenue bond issues, and to state agencies for review of various state bond issues.

The New Jersey Local Finance Board offers a quite different model for state action of this kind. The Board exercises extensive regulatory power over local finance. The state has established comprehensive budgeting, accounting, and financial reporting standards. Local governments must be audited annually, and must have their operating and capital budgets approved by the state.

The state also provides an extensive technical assistance and training effort through Rutgers University and the Bureau of Financial Management Services, located in the Department of Community Affairs. Ongoing assistance is offered in budget, fiscal and accounting practices, data processing, debt management, financial management, municipal operations, purchasing, and revenue sharing.

The regulatory system in New Jersey places a heavy burden on local officials to complete complex forms, employ a professional staff, and pay for extensive training. But the state also offers technical assistance and training to meet these burdens. The result has been an avoidance of serious financial problems and the creation of generally sophisticated financial management practices in local government.

Other states which have developed programs of this type include North Carolina, California and Louisiana.

In Texas, the collection and dissemination of financial data on local governments and local debt is provided through the Texas Municipal Advisory Council, a private trade association of Texas municipal securities dealers which was formed nearly 30 years ago. The Council provides financial and statistical data to governments and securities dealers. It publishes the Texas Bond Reporter, a weekly magazine which includes a bond calendar, reports on recent sales, and other items of current interest to securities dealers. It also publishes Texas Municipal Reports, which offers financial analyses of each local government with outstanding bonds. The Council is financed through subscriptions to its publications and an underwriting assessment which dealer members pay on each new issue of bonds they underwrite.

State Capital Planning

A number of states have developed planning processes for distributing state aid for capital construction projects to local governments. The goal of these processes is to stretch state resources and to allocate limited infrastructure funds in the most effective and equitable manner.

Two states which have developed model planning processes in this area are Vermont and Colorado. Vermont's capital planning process is based on the development of biennial and ten-year capital budgets and includes education, water pollution abatement, transportation, and water supply development and improvement. State agencies work with local jurisdictions in the development of capital plans. Projects are ranked by the Department of Budget and Management, which contacts local jurisdictions to determine the seriousness of need represented. The Department then develops the capital budget request for the

biennium. Concurrently, the State Planning Office develops a 10-year capital budget.

The capital budgeting process has forced Vermont to look critically at funding choices. The existence of a ten-year plan has helped to build an understanding of the state's investment position. Projects not completed in one year become part of the ten-year budget, to be considered in the next budget cycle. This buildup of projects in the latter part of the 10-year period provides an accurate picture of the problem of deferred capital investment.

Another approach to this problem has been taken in Colorado. State involvement began in 1980 with the formation of a blue ribbon panel to study the state's long term investment and financial needs. The panel included members from state and local government and the private sector. It recommended the preparation of a five-year state capital investment plan,[2] twenty-year forecasts of need, and the creation of a forum for coordinating private investment and public capital budgeting.

The state adopted many of the panel's recommendations. The Office of State Planning and Budgeting undertook an inventory of local government infrastructure needs in 1982. The inventory is to be updated every two years and will provide data on recent local expenditures for capital maintenance and construction as well as an assessment of local needs.

Washington State is considering revision of the State Capital Budgeting System.[3] A review of current procedures began in July, 1983, in order to improve methods

[2] The first such plan was published by the State of Colorado in 1982.

[3] State of Washington Office of Financial Management Capital Budgeting System: Policy Issue Decision Packages, 1983

of identifying and prioritizing capital needs and to more effectively monitor the status of projects. Capital budgeting procedures in other states were reviewed and alternatives to current practices were identified by a working committee of state agency representatives. Among the proposed changes are:

- The identification of deferred maintenance as a discrete component of the facilities budget
- Requiring the use of six-year facilities plans as the budget request vehicle
- A revised system of determining project priorities
- The use of "targets," by fund source, as parameters for six-year planning
- The use of five and ten-year planning as a means of financing the state's maintenance and repair backlog.

Financial Intermediation[4]

Certain states have chosen to assist local governments in lowering their capital financing costs by creating a state authority (or designating a state agency) to issue debt and to lend the proceeds to local jurisdictions. The state, in effect, lends its credit rating to local government. The benefit of this approach is preconditioned upon the state government having a higher credit rating than its local jurisdictions. These programs also serve to provide access to

[4] The intermediation referred to is between local jurisdictions and the municipal credit markets.

the credit market for new and infrequent users and to reduce underwriting and marketing costs. Different models of this type of approach include:

- Bond Bank

A bond bank purchases the issues of a number of local jurisdictions and sells its own bonds, which are backed by the aggregated local issues. This serves to lower information and transaction costs for potential bond buyers. It also spreads the risk of the default of any single local bond issue because the bond bank's issues are backed by the issues of a number of jurisdictions. The state does not directly guarantee the bonds issued by the bond bank, though a moral obligation to repay in the event of a bond bank default often is presumed.

Bond banks have been established in states which are primarily rural, with a large number of extremely small jurisdictions. States with bond banks are Vermont, Maine, New Hampshire, North Dakota, Nevada and Alaska.[5]

One working example is the Maine Bond Bank, created in 1972. The bank sells bonds in issues of $6 million or more and uses the proceeds to purchase an aggregation of smaller general obligation bonds issued by municipalities. This procedure reduces the costs of bond underwriting and marketing, and significantly lowers the interest payments paid by local jurisdictions. Any county, city, town, school district, water, sewer, and sanitary district may issue bonds through the bank. Participation in bank issues is voluntary, and the bond bank does not possess taxing authority. Security for bank obligations is provided by the "full faith and credit" of municipalities which sell bonds to the bank (or the revenue generated by revenue bonds of special districts). Additional security is provided by the establishment of a reserve fund (mandated by statute)

[5] A successful bond bank also operates in Puerto Rico.

equal to the maximum amount of principal and interest maturing in any succeeding year on all outstanding loan obligations. There is also the presumption of a moral commitment on the part of the Governor and Legislature to make up deficits in the bank's reserve fund in the event of a default (none of the localities participating in the bank have defaulted to date).

The likelihood of default is reduced by the bank's requirement that bond counsel opinion accompany local issues and by careful screening of applications. In the event of default, a series of safeguards has been established. These include the use of a contingency fund for temporarily missed payments, the reserve fund, and the possibility of a levy against other localities having placed debt with the bank.

The bank has been self-sustaining since its inception, with expenses covered by income from investment of the bank's reserve fund. The reserve fund is invested primarily in Federal land bank bonds, in order to preserve maximum stability for the fund. Because investment earnings have exceeded its expenses, the bank has not levied direct charges to localities for services (though it has the power to do so, if necessary).

In 1982, the Maine Bond Bank issued nearly $27 million in bonds, providing funds to 41 Maine jurisdictions. The Bond Bank currently has $217.7 million in outstanding bonds from 175 jurisdictions utilizing its services.

o Loan Progams

Several states have loan programs for construction or rehabilitation of public works facilities. The loan programs are usually funded by state general obligation bonds, but general fund or severence tax monies also have been used. Thirteen states have sewer facility loan programs to match the Federal construction grants program. Several states also have established loan programs for water facilities. In the west, these programs have emphasized the procurement of new water supplies, while in the east they have focused more on the rehabilitation of existing distribution systems.

The Texas Water Development Board was established in 1957. Its funds can be loaned to localities for construction of reservoirs, dams, conveyor lines, and treatment plants, or to purchase the unallocated waters in a new reservoir. Loans cannot be made for retail distribution within cities. Loans made by the Water Development Board primarily benefit small towns and water districts which cannot market their own bonds at favorable rates.

Colorado has operated a similar program through its Water Conservation Board. A state agency, the Board receives general fund appropriations, but has no bond authority. All projects are approved by the legislature. Loans from the Board cover 50 percent of the cost of water construction projects. The Board does not fund distribution systems.

Pennsylvania's Water Facilities Loan Board recently has begun operation using the proceeds of a $220 million state bond sale. Proposed projects are funded on the basis of cost effectiveness, credit worthiness, and consistency with state water plans and with economic development plans.

o Infrastructure Banks

The operating premise of the infrastructure banks is the substitution of low and no-interest state loans for matching grants as the main financing tool for local public works. This concept has attracted attention in the past year because of the growing recognition of the need for stable sources of low-cost capital to address the tremendous apparent backlog of necessary local public works improve-

ments. A revolving loan fund could provide a renewable source of funds, unlike a grant program that typically would be available only to a few jurisdictions on a one-time basis. The concept is also seen as promoting greater local effort and self-sufficiency. While none are yet in operation, the states of New Jersey, Massachussetts, Georgia and Oregon are developing noteworthy models at this time.

The New Jersey Infrastructure Bank was designed to minimize the impact of Federal cutbacks, the growth in long-term financing costs and staggering public works improvement needs. The New Jersey Infrastructure Bank, as proposed, would be capitalized from three sources:

1. The proceeds of the state general obligation bonds for wastewater, water supply, resource recovery, and transportation would be appropriated to the Bank, with the debt service to be paid by the State General Fund.

2. Federal grant funds used to finance infrastructure areas covered by the bank (e.g., wastewater treatment programs) would be converted to the loan fund. This would require changes in Federal law.

3. Specific state appropriations to the Bank.

The Bank would have the power to act as a bond bank, pooling local issues and issuing its own bonds using the local issues as security. The Bank would also function as a vehicle for the state to issue revenue bonds for infrastructure projects. A new source of revenues would then be earmarked to meet debt service requirements, enabling the Bank to raise capital for the projects.

Another proposal for an infrastructure bank originated in Massachusetts in 1983. The proposed Massachusetts Development Bank, or Mass/Bank, would not be an

independent authority, as in New Jersey, but would be part of the Executive Office for Administration and Finance. Mass/Bank would be established to finance a wide range of infrastructure projects including roads, bridges, mass transit, recycling and resource recovery, water systems, sewer systems, and solid hazardous waste. The bank would be organized with five operating divisions:

1. bond bank (for pooling local issuances)
2. transportation (roads, highways, mass transit)
3. environmental facilities (water, wastewater)
4. economic and community development (convention centers, stadiums, parking facilities)
5. hazardous and solid waste disposal

Each division has considerable flexibility of financing method, with local projects being financed by loans and state projects funded by state grants through the Bank. Mass/Bank would be capitalized through the imposition of a number of committed taxes, including a surcharge on the gross receipts from the sale of petroleum products, an excise tax on deeds and mortgages, an addition to the state gas tax, and an extra tax on aviation fuel. Additionally, revenues from the Massachusetts Turnpike Authority (after bond repayment and maintenance costs are deducted) would be dedicated to the Bank. The Mass/Bank is an attempt to organize the state's response to the infrastructure financing problem through a single integrated institution, with adequate financial capacity, and a close connection to the executive branch. The Mass/Bank proposal includes a provision for a five-year public facilities plan, updated and submitted to the legislature annually, both for general obligation funded projects, and for Mass/Bank revenue bonds.

In 1983, the Georgia State Assembly broadened the powers of the Georgia Development Authority to include the provision of grants and loans for water supply and sanitary sewer systems in local jurisdictions in the state. The Development Authority was established in the 1930's with the goal of promoting agriculture and industry. In recent years it has operated primarily as a conduit for Federal agricultural loan funds. A provision of the Georgia State Constitution provides that only state authorities established prior to 1960 can issue general obligation debt. For this reason, a new Environmental Facilities Program was created within the existing authority to manage the new grant and loan programs.

The Georgia Development Authority is currently restricted to providing financial assistance for local water and sewer facilities. However, it envisions a broader role in promoting future economic development in the state and is outlining economic development criteria for its prospective finance role in this area. At present, 98 percent of the cities and towns in Georgia are unrated in the municipal bond market and have difficulty obtaining capital for public works and economic development.

During its current session the Georgia State Assembly is considering a capitalization proposal for the Environmental Facilities Program. Funds requested for 1984 include $5 million for a grant program and an appropriation for general obligation debt service of $2.5 million.

The conceptual framework for this proposal is that the state will issue five-year general obligation bonds, the debt service on which will equal $2.5 million a year for the five-year term of the bonds. At current rates of interest, this amount of debt service will enable the state to issue $27 million of general obligation bonds. The Authority will then loan these funds to local communities for 25 years at approximately the same interest rate paid by the state. Local

borrowers will receive subsidies of both repayment terms and interest costs. Benefits to local governments will amount to over two percentage points, given current bond prices.

Loans to local jurisdictions are to be repaid to the Authority so that a pool of loanable funds is developed. The Authority plans to limit its requests for Assembly appropriations to the next three sessions. At that point, new funds for loans will be obtained through the authority's issuance of revenue bonds.

It is anticipated that in the program's initial years of operation, grant funds will be necessary to meet the backlog of water and sewer needs in communities which have experienced financial difficulties. In subsequent years, more emphasis is expected to be placed on infrastructure loans, with lower credit risks being a larger part of the bank's portfolio.

In its 1983 session the Oregon State Legislature approved, by overwhelming margins in both houses, the creation of an infrastructure bank known as the Community Development Finance Corporation. The Corporation will provide loans to local jurisdictions to finance a variety of public works projects, including those for transit, roads, sewage treatment, water supply, and other facilities necessary for the industrial or commercial development of any municipal corporation. The Corporation's enabling legislation also allows it to award grants, but no funding for such grants is expected in the near future.

The Corporation has been established as a separate institution of state government, but will be staffed by the State Department of Economic Development. State bonds will be issued to provide capital for the Corporation. The Oregon State Constitution requires that the expansion of bonding authority by a state agency (in this case, the Department of Economic Development) be approved by the voters; an election is scheduled for May, 1984. Voters will be asked to approve

a bonding authority equal to one-half percent of the true cash value of the state (currently, a total of $432 million).

The bonding authority sought by the Community Development Finance Corporation is, in fact, one half of the amount approved in the early 1970's when the State of Oregon Pollution Control Board Fund was established, with bonding authority equal to one percent of the true value of the state. Voters in the May 1984 election in effect must broaden the set of uses permitted for bonds issued under one half of this authority.

All loans to local jurisdictions will be made at the state tax exempt bond rate. This means that the Corporation will be most useful to those jurisdictions which have bond ratings lower than that of the state. The Corporation has some flexibility in the methods it can use in funding local projects. It is presently unclear whether the state will buy the bond issues of local jurisdictions or make direct loans to these jurisdictions.

Recent Federal Action

During the 1983 session of the U.S. Congress, several pieces of legislation aimed at rebuilding the nation's infrastructure were introduced. Many of these bills emphasized the creation of a stable source of Federal funding for infrastructure, often by developing a national institution to provide funding to state and local infrastructure banks. None of the legislation introduced during the 1983 session was enacted. A framework for future legislation was established, however, and Congress will continue to explore Federal program options during the 1984 session. One such option is the proposed National Infrastructure Corporation (NIC) which would issue Federal debt to capitalize state infrastructure banks or grant and loan funds. A description of this proposal and legislation introduced in the U.S. Congress in 1983 follows in Table III-1.

Table III-1: FEDERAL PROPOSALS FOR INFRASTRUCTURE FINANCE

BILL NO.	NAME-SPONSOR	PURPOSE	BOARD	FORMS/FUNCTIONS	FUNDS
	National Infrastructure Corporation (NIC)	Spur major infrastructure investment at state and local level through creation of Federal subsidized financing corporation	9 members Sec. of Trea., Fed Res. Board Chair., designees from NCA, NCSL, NACO, USCM, NLC; 2 Pres. appointees	Raises funds through issuance of fed. debt and capitalizes state infrastructure banks; states repay principal on NIC loan funds but Treasury reimburses NIC for interest costs and states are able to issue interest free loans; decision making on infrastructure projects kept at state and local level; Board determines annual national allocations	Authorization level to be determined, but large enough to significantly impact on estimated $200 billion infrastructure shortfall; distribution formula set by Congress
S.532 (incorp. into amended S.1330)	Public Investment Incentive Act of 1983 - Domenici	Create national entity to oversee establishment and funding of state infrastructure banks and provide start-up funding	9 members - Secs. of Trea., & Transp., Admin. of EPA, Chair. NCA, Pres. NCSL, NLA, USCM, 2 Pres. appointees	Creates National Infrastructure Council which certifies state infrastructure banks, approves state requests for apportionment of funds; also amends Clean Water Act to permit construction grants to be used by states as loans	$5 bill. in first year, $3 bill. in second, $2 bill. in third
S.1330 (original bill)	Public Capital Investment Act of 1983 - Stafford	Provide grants to states through U.S. Army Corps of Engineers to establish dedicated infrastructure "funds"; establish counter-cyclical fund	None - Sec. of Army heads program	Through distribution formula sec. Sec. approves state grant application; grant must be matched 50/50 and used only for loans; amends Clean Water Act to permit construction grants to be used by states as loans; counter-cyclical administered as discretionary program by Sec. triggered by unemployment	$5 bill. a year for 10 years for state banks; $2 bill. for counter-cyclical

BILL NO.	NAME-SPONSOR	PURPOSE	BOARD	POWERS/FUNCTIONS	FUNDS
S.1330 (as amended)	Public Capital Investment Act of 1983 - Stafford	Create National council to determine infrastructure condition and need; improve capital budgeting process; provide grants to states for dedicated infrastructure funds	13 members - Secs. of Agric., Army, HUD, Transp., Admin. of EPA, Chair. of NGA, Pres. of NCSL, NACO, NLC, USCM, 3 Pres. appointees	National council on Public Capital Investment with direction of Sec. of Army, to determine research guidelines for Sec. DOT prepare w/in one year rpt. on condition of infra., w/in two year rpt. on needed revisions in policies, programs and intergovernmental response; Pres. to prepare sum of cap. expenditures and CBO to do analysis of Federal and non-Federal investment and five year projection on needs; through set distribution formula, Sec. DOT will make grants available to states on two-to-one basis to establish infrastructure loan funds; amends Clean Water Act to permit construction grants to be used by states as loans	$2.5 bill. a year for next four years
S.1619	Public Works Investment Incentives Act of 1983 - Bentsen	Establishes national council to oversee distribution of grants to establish state infrastructure banks	5 members - Sec. of Commerce as Chair, reps. of NGA, USCM, NLC, NACO	National Infrastructure Commission supervises and accounts for distribution of population-based formula grants to states used to capitalize infrastructure banks; banks to use 1/2 of funds with loans for 40% of infrastructure project and 1/2 of funds to provide 50% interest subsidies of market interest rate on projects	$10 bill. a year for 10 years

BILL NO.	NAME-SPONSOR	PURPOSE	BOARD	POWERS/FUNCTIONS	FUNDS
H.R. 638	National Development Act of 1983 - Minish	Establish national bank to provide loans to government for infrastructure facilities, loans to businesses for their improvement and funds for job training	11 member Board - Sec. of Tres., Commerce, Agric., Labor; Chair. of SEC and six appointed by Pres. from government, business, and labor	National Development Bank established which can make or guarantee loans, purchase or guarantee obligations relating to capital expenditures for public works; provide loans or guarantees to start, expand or assist private businesses; provide for job training; additional sums authorized to allow for interest subsidies on loans	$2.5 bill. (with indebtedness set at $50 bill.)
H.R. 2419	National Public Works Corporation Act - Clinger	Establish national corporation to provide assistance to state and local governments for infrastructure	7 member Board - bi-partisan membership appointed by Pres.	National Public Works Corporation would be authorized to make loans to state and local government on one-for-one basis to finance infrastructure projects; population ratio is cap and loans can be reclycled; loan repayment tied to project revenue stream; additional sums authorized to allow for interest subsidies on loans	$2.5 bill. (with indebtedness set at $50 bill.)
H.R. 3579	National Rebuilding and Development Bank Act - Rangel	Create national bank to make loans for housing and community facilities	7 member Board - membership appointed by Pres.	National Rebuilding Development Bank would be authorized to make loans and guarantees, sales and lease of property to improve housing, public facilities and provide employment	No funding level set, funds "as shall be necessary"

Source: U.S. Congress: Joint Economic Committee. Draft Report of the National Infrastructure Study. (forthcoming) Washington, D.C.: 1984

ART IV: FINDINGS OF THE PUBLIC WORKS INVENTORY

V.A: Study Methodology

he development of the Public Works Inventory Survey was a cooperative effort nvolving local officials, representatives of local government associations, embers of the public works and civil engineering community and state agency ersonnel. A draft survey was pretested on selected jurisdictions in early June nd the final document was distributed on June 22 to every city, county and pecial purpose district which was likely to be responsible for one or more of he facilities included in this study.

CAA staff conducted a series of workshops in nine communities[1] across the state ollowing distribution of the survey and also provided extensive follow-up ssistance to all jurisdictions via telephone. In addition, members of Washing-on State sections of the American Society of Civil Engineers and several local fficials with capital planning experience volunteered their time to work with maller communities requiring assistance with survey questions.

he Association of Washington Cities, the Washington State Association of Coun-ies, the Washington State Association of Sewer Districts and the Washington tate Association of Water Districts all actively encouraged their members to articipate in this effort and were instrumental in the attainment of an 87 ercent response rate (see Section VII.B of the Report for details of the survey

Survey assistance workshops were held in Kelso, Port Townsend, Bellingham, Cheney, Moses Lake, Walla Walla, Yakima, Olympia and Bellevue.

response rate). This response rate is especially remarkable since the survey was adminis-tered during the peak of the summer construction and vacation season. Over 98 percent of the state's population is represented by jurisdictions responding to the survey. The results not only provide much new information on the state's public facilities, but also the first definitive listing of the public facilities provided by special purpose districts.

Data, Quality and Limitations

Data received from the survey reflect the predictable problems of a large research effort conducted within extremely narrow time constraints. Some jurisdictions were able to formulate their responses to survey questions on the basis of sophisticated capital improvement plans already in place. Others found it necessary to make initial estimates about the inventory, condition and critical needs of their public facilities. Differences in the size, staffing and structure of these jurisdictions resulted in some unavoidable disparity in local responses to survey questions.

The term "critical needs" was used in the survey to refer to essential public works repair and replacement requirements. The enabling legislation provided only a minimal definition of needs to be considered in the report, specifying facilities which:

1. are dangerous to public health and safety,
2. require immediate replacement or repair to correct deficiencies, or
3. need replacement or repair within the next five years.

Since local jurisdictions use diverse and highly individualized criteria in making capital investment decisions, the survey did not specify quantitative measures for selecting "critical" projects. Local officials were asked to use a definition or standard of measurement which reflected their respective views of critical needs within their own community. They were also asked to avoid creating a "wish list" of projects and were made aware that their individual lists of critical priorities would be published as submitted for full public scrutiny and discussion.

any survey questions were intentionally shaped rather broadly to encourage all communities to respond. Representatives of the technical associations which elped to develop the survey felt strongly that more specific or detailed questions would be ignored, simply because most jurisdictions would not have adequate information to answer them.

he survey format itself limited the ability of local officials to explain or ualify their answers. The very brief project descriptions included in the ritical needs section did not provide sufficient information with which to nterpret differences in scope and complexity among similar-sounding projects ith large cost variances.

e above qualifications are not intended to diminish the importance of the data ovided by any jurisdiction, but only to caution the reader that information esented herein is an initial effort which demands further refinement, analis and debate by a wide range of knowledgeable individuals.

Data Management and Analysis

Extensive efforts were made to insure that survey information was correct and comprehensive. All surveys were checked for completeness and accuracy and follow-up phone calls were made in cases where clarification was necessary. To obtain data from as many jurisdictions as possible, those not responding initially were contacted by phone and sent reminders by mail to urge their completion of the survey.

Computer data entry was followed by an extensive verification process which was accomplished by comparing all computer-input data with the original survey responses. Where possible, data from state agencies were directly merged with the survey data base. In other cases manual transfer of information from several source documents was necessary.

Data analysis followed the broad lines of the survey itself, arranged by system inventory, condition, projects, and funding. In each public works category, the basic relationships between and among groups of variables were examined. Particular attention was paid to the differences between jurisdictions with and without reported funding shortfalls with respect to size, growth rates, facility maintenance and condition, total project cost, user fees and other variables in an attempt to better understand the nature of the funding gap.

Data Presentation

All data presented in Sections IV.B and C are derived from responses to the Public Works Inventory Survey. The format conforms to that of the survey in

discussing system inventory, condition, critical needs (projects) and projected funding and funding shortfall for each public works category. Tables are numbered according to the text organization listed in the Table of Contents. Table IV.B.5-4, for example, is located in Part IV (Findings of the Public Works Inventory), Section B (Local Facilities), Subsection 5 (Storm Sewer Systems), and is the fourth table in the storm sewer subsection (the final digit of both table and figure numbers refers to their sequence within the respective subsections). Charts and graphs, referred to as "figures", are numbered in the same manner as tables.

Information on system condition ("b" in each categorical subsection) is derived from a set of questions in the survey which requested an assessment of the condition of each jurisdiction's: (1) current system inventory, (2) the anticipated inventory condition in 1984 if necessary repair work is not accomplished, (3) the inventory percentage expected to require repair within five years, and (4) the portion of the inventory which respondents expect to remain in acceptable condition for five years or more. This sequence of percentages was designed to total 100 percent.

"Average condition" refers to the sum of inventory condition percentages submitted by survey respondents, divided by the total number of jurisdictions reporting. This method does not permit the reader to multiply the percentage by an inventory measure such as miles of streets and roads to determine the overall amount of the total inventory in less than acceptable condition. It does, however, present an aggregate indicator of the general condition of local inventories in each public works category.

Local jurisdictions were asked to report the overall condition of their public works systems according to their individual measurement criteria. The term

"optimal condition" is used in the report to denote an ideal standard for system condition. No attempt was made, however, to develop a uniform definition since needs and expectations vary considerably among jurisdictions.

Response rates provided for tables in Sections IV.B and C vary within each subsection for two reasons: (1) jurisdictions were not always able to provide complete data in a particular survey section, and (2) some local jurisdictions responding to the survey reported no critically needed projects in a particular functional area (bridges, water systems, etc.).

Jurisdictions responding to the survey listed project information by the year each project was anticipated to begin. To meet requirements of SSB 3035, cost totals in the "projects" discussion of each categorical subsection are listed separately for 1984 and the 1985-88 period. Totals for the two periods are combined in subsections dealing with project funding and funding shortfall.

In order to develop a complete inventory of local needs, jurisdictions were asked to submit their lists of critically needed projects without regard to funding availability. Funding information was related to <u>total</u> project costs in a given public works category, i.e., bridges, water systems. As a result, information on whether specific projects are funded or unfunded is not included in this report.

It is important to note that many of the project costs presented in the report were estimated based on preliminary assessments of project requirements. <u>All project cost figures should be regarded as estimates</u>. <u>Project cost information throughout the report is presented in 1983 dollars</u>.

Jurisdictions were asked to submit their best estimates of total funding available to them from various sources. Each jurisdiction's funding shortfall was

calculated by multiplying the shortfall percentage supplied in the survey by the total cost of projects submitted by the jurisdiction. The shortfalls for all jurisdictions within each public works category were then added to determine the total shortfall for that category.

The categorical data presentation and discussion follow on pages 70 through 159.

IV.B.4: Sanitary Sewers

a. Inventory

The 259 jurisdictions reporting sewer systems had a total of 1,161,213 service connections served through 14,321 miles of pipe.

Most jurisdictions treat their own sewage, as shown in Table IV,B.4-1. Only 22 cities, 4 counties, 10 sewer districts and 6 water districts (18 percent in all) do not treat their own sewage. These jurisdictions contract with others for sewer services, more with the Municipality of Metropolitan Seattle (METRO) than with any other jurisdiction. Two-thirds of the jurisdictions performing their own treatment provide secondary treatment[1].

b. Condition

Sanitary sewer systems are required to meet Federal Discharge Standards by 1988. The standards establish the maximum amount of pollutants which can be discharged by a treatment facility. In practice, compliance requires systems to provide secondary treatment. Compliance with the Federal standards is managed through the issuance of National Pollution Discharge Elimination System (NPDES) permits which require that sewer treatment facilities capable of meeting the 1988 Federal standards do so as soon as possible. Any construction required to attain compliance must be completed by 1988. Exceptions are provided for jurisdictions which can demonstrate that they are financially unable to meet permit requirements. In such cases, a schedule for compliance must be negotiated. In Washington State, the Department of Ecology is responsible for managing the permit system.

[1] Biological reduction of organic waste load.

Table IV.B.4-1: LEVEL OF SEWAGE TREATMENT

Type of Jurisdiction	# Jurisdictions Reporting	Primary Treatment (1)	Secondary Treatment (2)	Advanced Wastewater Treatment (3)	Performed By Other Jurisdictions
Cities	179	44	107	6	22
Over 100,000	3	1	0	1	1
20,000 - 100,000	17	5	9	0	3
5,000 - 20,000	35	6	20	1	8
1,000 - 5,000	74	14	51	3	6
1,000 or less	50	18	27	1	4
Counties	12	2	6	0	4
Sewer Districts	29	7	9	3	10
Over 62,500	1	1	0	0	0
12,500 - 62,500	6	3	0	0	3
2,500 - 12,500	7	1	4	1	1
1,250 - 2,500	3	0	2	0	1
250 - 1,250	6	1	2	2	1
5 - 250	6	1	1	0	4
Water Districts	14	1	7	0	6
Other Jurisdictions*	8	3	4	0	1
TOTAL	242	57	132	9	44

*Includes public utility, port and irrigation districts.

(1) Refers to pollutant removal by settling.

(2) Refers to biological reduction of organic waste load.

(3) Refers to additional treatment to reduce specific pollutants.

As indicated in Table IV.B.4-2, 188 of the 227 jurisdictions responding to the survey's NPDES permit question (83 percent) reported that their facilities currently meet permit requirements. Almost all sewer and water districts currently meet requirements, as do 81 percent of the cities reporting.

Response to the question on compliance with Federal Discharge Standards indicates that 133 of 218 jurisdictions (61 percent) currently meet these standards. Ninety of 162 cities reporting indicate that they do not yet meet the standards. Projects necessary in order for all jurisdictions to meet 1988 Federal Discharge Standards are estimated to cost $911 million.

On the average, 16 percent of a local jurisdiction's sewer system inventory is currently in less than acceptable condition. Unless necessary repair is completed, 32 percent will be in unacceptable condition by the end of 1988. Figure IV.B.4-1 indicates sanitary sewer system condition by type of jurisdiction.

Local jurisdictions, on the average, accomplished 77 percent of optimal sanitary sewer system maintenance in 1983, an increase of 7 percent from 1978. The percentage of maintenance accomplished in 1978 and 1983, by type of jurisdiction, is as follows:

	1978	1983
Counties	76%	76%
Cities	67%	74%
Sewer Districts	75%	84%
Water Districts	77%	83%

Maintenance and condition vary somewhat by jurisdiction type and size. On the average, facilities in sewer districts and water districts are reported to be in noticeably better condition than those in most cities and counties.

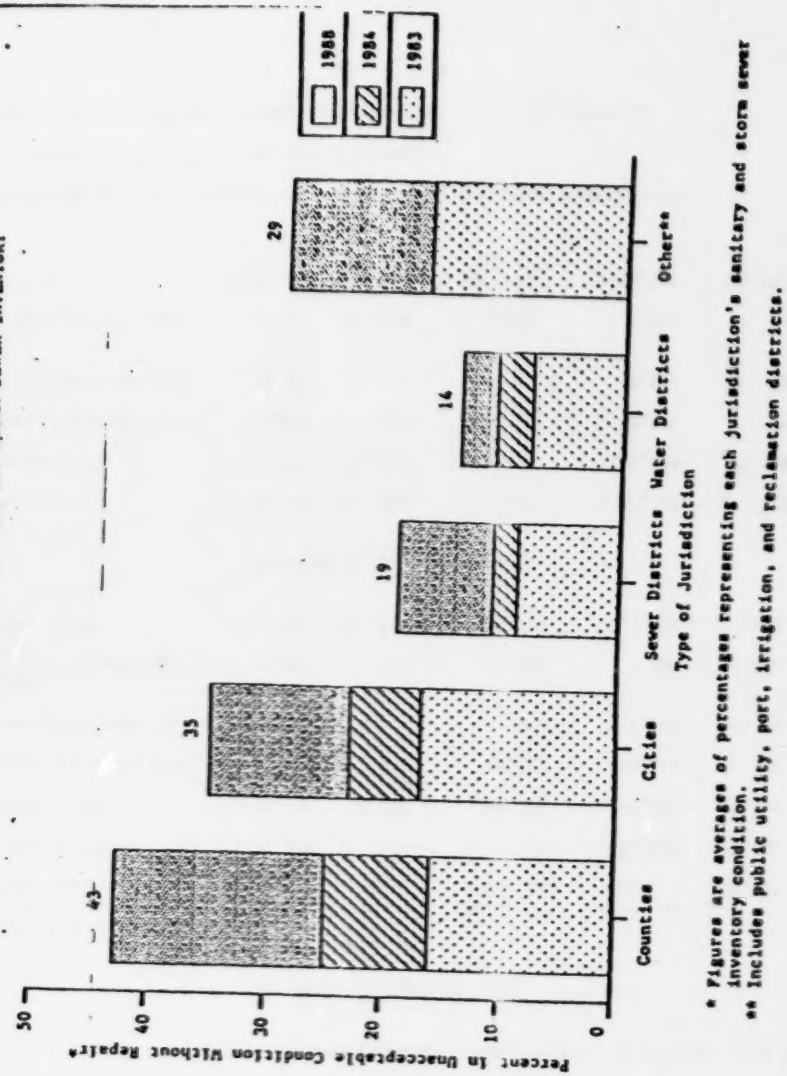
Table IV.B.4-2: NUMBER OF JURISDICTIONS MEETING NPDES PERMIT REQUIREMENTS; NUMBER OF JURISDICTIONS WHOSE FACILITIES MEET 1988 FEDERAL DISCHARGE STANDARDS; ESTIMATED COST OF FACILITY IMPROVEMENTS NEEDED TO MEET FEDERAL STANDARDS. ($ in 000's)

Type of Jurisdiction	Number Jurisdictions Reporting (NPDES)	Meeting NPDES Permit Requirements	Number Jurisdictions Reporting (Fed. Dis.)	Meeting 1988 Federal Discharge Standards	Total Estimated Cost to Meet Federal Standards
Cities	171	139	162	90	$487,706
Over 100,000	3	3	3	1	145,800
20,000 - 100,000	17	10	17	6	190,650
5,000 - 20,000	31	27	30	17	69,200
1,000 - 5,000	76	59	70	37	64,460
1,000 or less	44	40	42	29	17,597
Counties	11	8	11	8	3,100
Sewer Districts	26	23	25	19	415,817
Over 62,500	1	1	1	0	383,000
12,500 - 62.500	6	6	5	4	15,000
2,500 - 12,500	8	5	8	4	17,817
1,250 - 2,500	3	3	3	3	0
250 - 1,250	4	4	4	4	0
5 - 250	4	4	4	4	0
Water Districts	12	12	13	11	750
Other Jurisdictions*	7	6	7	5	4,035
TOTAL	227	188	218	133	$911,409

*Includes public utility, port, irrigation and reclamation districts.

Numbers in rows and columns may not equal totals due to rounding.

Figure IV.B.4-1: AVERAGE CONDITION OF SANITARY AND STORM SEWER INVENTORY



* Figures are averages of percentages representing each jurisdiction's sanitary and storm sewer inventory condition.
** Includes public utility, port, irrigation, and reclamation districts.

One hundred ninety-six jurisdictions (of 267 responding to the survey's sanitary sewer system questionnaire) have identified critical projects needed within the next five years which will cost $820 million. Of this total, $403 million is needed in 1984 and $417 million in the 1985-88 period. The remaining 71 jurisdictions reported no critical projects. City sanitary sewer system project costs account for the majority of costs in this category, as shown below:

	1984	1985-88
Counties	8%	10%
Cities	81%	77%
Sewer Districts	9%	11%
Water Districts	2%	1%
Other Jurisdictions	<1%	1%

Jurisdictions were asked to indicate whether projects listed involved major repair, reconstruction or construction work. The percentage distribution of total sanitary sewer system costs for all jurisdictions, by type of project, is as follows:

	1984	1985-88
Major Repair	4%	3%
Reconstruction	30%	17%
Construction	64%	77%
Other	2%	3%

(see Table IV.B.4-3 for additional detail)

Jurisdictions were also asked to allocate their sanitary sewer project costs by system element (interceptor[2] or treatment). Costs for all juris-

[2] Pipe, the primary purpose of which is to convey wastewater from the areas served by the systems to the treatment facility.

Table IV.B.4-3: TOTAL SANITARY SEWER PROJECT COSTS, BY TYPE OF PROJECT ($ in 000's)

Type of Jurisdiction (# of Jurisdictions Reporting Projects)	Project Costs	Major Repair	Reconstruction	Construction	Other*
Projects to Begin in 1984					
Counties (7)	$ 31,469	$ 100	$ 570	$ 25,019	$5,780
Cities (119)	325,240	14,324	99,731	208,564	2,621
Sewer Districts (19)	35,418	782	18,461	16,090	85
Water Districts (7)	9,408	0	803	8,605	0
Other Jurisdictions** (3)	2,057	34	1,255	500	268
TOTAL (155)	$403,592	$15,241	$120,820	$258,778	$8,754
Projects to Begin in 1985-88					
Counties (9)	$ 42,128	$ 265	$ 1,145	$ 40,718	$ 0
Cities (111)	322,911	12,427	39,651	227,614	13,219
Sewer Districts (13)	44,040	130	26,050	17,795	65
Water Districts (6)	4,023	0	2,347	1,676	0
Other Jurisdictions** (4)	3,750	11,500	2,614	1,100	24
TOTAL (143)	$416,852	$12,834	$71,807	$318,902	$13,308

*Includes studies, purchase and installation, and major maintenance.

**Includes public utility and port districts.

Numbers in rows and columns may not equal totals due to rounding.

dictions are distributed as follows:

	1984	1985-88
Interceptor	68%	52%
Treatment	31%	43%
Not Classified	1%	5%

(see Table IV.B.4-4 for additional detail)

The relatively greater need for interceptor projects may be explained in part as follows:

1. Sewer systems have expanded beyond originally planned boundaries, and zoning changes in areas served by the systems have had the effect of increasing population and land use densities. These factors have resulted in overloading existing interceptors. This frequently led to the installation of new interceptors to serve as bypasses.

2. Treatment plants are often moved when they are replaced. This requires interceptor extensions to the new location.

3. Increasing power and maintenance costs have made lift and pump stations so expensive that where technically feasible, it is often cost effective to replace them with redesigned gravity interceptors.

d. Projected Funding and Shortfall

Local jurisdictions anticipate a 1984-88 sewer project funding shortfall of over $249 million[3] (see Table IV.B.4-5). However, only 58 percent of sewer systems have unfunded projects (see Table IV.B.4-6).

[3] Of this total, $11 million is attributed to projects in Okanogan County which will be funded by a proposed Utility Local Improvement District (ULID) if voter approval is obtained. This will lower the total sanitary sewer shortfall to $238 million.

PART V: GLOSSARY OF TERMS

ACP. Asphaltic concrete pavement. A designed pavement of mineral aggregate filler and asphalt cement which is mixed, laid and compacted on the roadway while hot.

ADVANCE REFUNDING BONDS.* Bonds issued to refund an outstanding bond issue prior to the date on which the outstanding bonds become due or callable. Proceeds of the advance refunding bonds are deposited with a trustee, invested in U.S. Treasury Bonds or other authorized securities, and used to redeem the underlying bonds at maturity or call date and to pay interest on the bonds being refunded or the advance refunding bonds.

ADVANCED WASTEWATER TREATMENT (AWT). Sewage treatment, beyond the secondary level, to reduce specific pollutants.

AMORTIZATION. Provision for debt retirement by means of a debt service fund. Involves a straight line reduction of debt through periodic payments sufficient to meet current interest and liquidate the debt at maturity.

ASSESSED VALUATION.* A valuation set upon real estate or other property by a government as a basis for levying taxes.

ASSESSMENT ROLL. As applied to real property, the official list containing the legal description of each parcel of property and its assessed valuation. The name and address of the owner are usually shown.

BARS. The Budgeting, Accounting, Reporting System as prescribed by the State Auditor for use by counties, cities, and other local governments in Washington State.

BASIS POINT. A measurement (one one-hundredth of one percent) used to value municipal bonds. One hundred basis points equal one percentage point.

BOND BANK. A state governmental entity which purchases the bond issues of local governments and sells its own bonds, which are backed by the local issues.

BOND COUNSEL. An attorney who reviews the legal documents and writes an opinion on the tax exempt status and issuance authority of a bond or note.

BOND INSURANCE. Insurance purchased by a bond issuer which guarantees the payment of principal and/or interest. Such insurance provides a higher credit rating and therefore a lower borrowing cost to the issuer.

*Indicates definition from Glossary of Terms in the Budgeting, Accounting, and Reporting System (BARS) manual.

BST. Bituminous surface treatment; oil mat. A thin pavement surfacing treatment in which bituminous material and a cover aggregate are applied to the surface of the roadway.

CALL PROVISION. Provision of a bond resolution or indenture which specifies the terms of the bond's redemption by the issuer prior to their stated maturity date.

CAPITAL BUDGET. A plan of proposed capital expenditures, usually enacted as part of the complete annual budget, which ties a long-term Capital Improvement Program (CIP) to financing available in a fiscal period.

CAPITAL IMPROVEMENT PROGRAM (CIP). A jurisdiction's plan which matches the costs of future projects such as those for water and sewer systems and roads to anticipated revenues. A governmental time table for constructing capital improvements which includes the determination of project priorities and project timing, estimation of costs, and consideration of methods for financing. CIP's are usually prepared for five or six-year periods, are updated annually and should be coordinated with the jurisdiction's comprehensive planning and budgeting processes.

CAPITAL PLANNING. A systematic process which identifies future public facility needs, sets priorities, considers financing alternatives, and develops a long-range capital improvement program (CIP).

CARRYING CAPACITY. The level of use which can be accommodated and continued without irreversible damage to natural or human resources, the ecosystem and the quality of air, land and water.

COUNCILMANIC GENERAL OBLIGATION DEBT. That amount of debt which may be obligated by the legislative body of a public jurisdiction without voter approval. Based on a percentage of the jurisdiction's assessed value as prescribed by statute.

COVERAGE.* The ratio of net revenue available for debt service to the average annual debt service requirements of an issue of revenue bonds.

CULVERT. Any roadway structure with a space underneath the roadway which has a clear opening of 20 feet or less (measured along the center of the roadway) and is generally used for drainage purposes.

CURRENT EXPENSE FUND. A commonly used name for a jurisdiction's general fund. The fund is used to account for all financial resources except those required to be accounted for in an earmarked fund.

DEBT SERVICE PAYMENTS. Payments of the interest and principal on outstanding debt, especially for term bonds.

DEPRECIATION.* The portion of the cost of a fixed asset which is charged as an expense during a particular period. In accounting for depreciation, the cost of a fixed asset, less any salvage value, is prorated over the estimated service life of such an asset, and each period is charged with a portion of such cost. Through this process, the entire cost of the asset is ultimately charged off as an expense.

ENTERPRISE FUND.* A fund established to account for government operations that are financed and operated in a manner similar to private business enterprises, where the intent of the governing body is that the costs of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges. Examples of enterprise funds are those for water, gas, and electric utilities.

EXCESS LEVY. A levy which exceeds the statutory limit for a particular type of jurisdiction and requires voter approval.

FEDERAL CLEAN WATER ACT GRANTS. Grants awarded to local jurisdictions for construction of wastewater treatment facilities. Administered at the Federal level by the Environmental Protection Agency and at the state level by the Washington State Department of Ecology. Authorization for the program is derived from the Federal Water Pollution Control Act of 1972 (PL 92-500), the Clean Water Act of 1977 (PL 95-217), and the Municipal Wastewater Treatment Construction Grant amendments of 1981 (PL 97-117).

1988 FEDERAL DISCHARGE STANDARDS. Effluent standards which require sewer systems to provide secondary treatment.

FIRE FLOW CAPACITY REQUIREMENTS. The volume of water, usually expressed in gallons per minute sustainable over some specified period of time, i.e., number of hours, needed to provide adequate fire protection. Flow capacity requirements depend on type of construction and use. In small towns the requirements for fire protection usually exceed other water system requirements.

FIVE YEAR COMPREHENSIVE WATER PLAN. The Washington State Department of Social and Health Services (DSHS) requires all water utilities with 1000 service connections or more to evaluate their current and future needs for at least a five-year period. DSHS must approve completed plans which are updated every five years.

FULL FAITH AND CREDIT.* The pledge of the general taxing power of a government for the payment of debt obligations. Bonds carrying such pledges are referred to as general obligation bonds.

FUNCTIONALLY OBSOLETE BRIDGES. Bridges which impede the flow of goods and services, primarily because of geometric inadequacies. An example is a bridge which is too narrow for oncoming traffic to pass freely.

GENERAL OBLIGATION BOND (G.O. BOND). Bonds for the payment of which the full faith and credit of the issuing government are pledged. Most commonly, general obligation bonds are payable from ad valorem property taxes.

GUARANTY FUND. A fund established by a bond issuer which is pledged as security for the payment of one or more bond issues.

INFRASTRUCTURE. The underlying foundation, especially the basic installations and facilities on which the continuance and growth of a jurisdiction depends; i.e., streets and roads, sewer and water systems.

INTERCEPTORS. Pipe, the primary purpose of which is to convey wastewater from the areas served by sewage systems to a treatment facility.

LEVY LID. A statutory restriction on the annual increase in the amount of property tax a given public jurisdiction can assess on regular or excess levies.

LOCAL IMPROVEMENT DISTRICT (LID). A special area formed by a local jurisdiction within which property is assessed to pay for specific improvements. Each parcel's assessment can be no greater than the amount by which that property is benefited by the improvements. Revenue raised through assessments may be applied directly to improvement costs or pledged for payment of debt service on bonds issued to pay for improvements.

LOCAL OPTION REAL ESTATE EXCISE TAX. A tax on the sale of real property which local jurisdictions may impose on the seller pursuant to RCW 82.46. The tax is applied at the rate of .25% of the selling price exclusive of any personal property involved in the sale. Revenues replace those formerly acquired through general government development fees.

MORAL OBLIGATION BOND. A type of municipal security that is not backed by the full faith and credit of a state. State law provides, however, that the state will replenish the issue's debt service rescue fund if necessary.

MOTOR VEHICLE FUND. The Motor Vehicle Fund contains revenues generated by the motor vehicle fuel tax, licenses, fees, permits and miscellaneous sources. Motor fuel taxes are distributed by statutory formula to cities, counties, the ferry system, and the Department of Transportation (DOT). The balance of revenues deposited to the fund are distributed to other state agencies and to DOT for highway-related programs. Other funds used by DOT (such as federal funds and general funds) are also placed in the Motor Vehicle Fund as they are received.

NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) STANDARDS. Federal standards for wastewater disposal. No new sewage treatment systems may be installed under these standards without providing secondary treatment. Existing non-complying systems must provide secondary treatment by 1985.

NOMINAL INTEREST RATES. The premium required to acquire the use of funds; expressed as a percentage, without adjustment for inflation. If $100 is borrowed and $110 repaid in one year, the nominal interest rate is 10 percent.

OCCUPANCY DAYS. (Also known as activity occasions) Any part of a day spent by a given individual engaged in a specific activity at a park or recreation facility. Two activities (for example, swimming and fishing) engaged in by the same individual are counted as two occupancy days.

OFF ROAD VEHICLE (ORV) FUND. A portion of the gasoline fuel excise tax and ORV registration fees paid by ORV recreationists which are refunded through the Interagency Committee for Outdoor Recreation to municipalities, counties, state agencies and certain federal agencies for the planning, acquisition, development and management of ORV facilities and activities.

OPERATING BUDGET.* Plans of current expenditures and the proposed means of financing them. The operating budget is the primary means by which most of the financing of acquisition, spending, and service delivery activities of a government are controlled. The use of (annual) operating budgets is usually required by law.

OUTDOOR RECREATION GRANTS PROGRAM. A grants-in-aid program administered by IAC to provide funding to local agencies for park and recreation purposes.

OVERLAPPING DEBT. That portion of the debt of other governmental units for which residents of a particular municipality are responsible (e.g. for services or facilities shared by several municipalities). The amount of debt of each unit applicable to the reporting unit is arrived at by determining what percentage of the total assessed value of the overlapping jurisdiction lies within the limits of the reporting unit, and applying this percentage to the total debt of the overlapping jurisdiction. Special assessment debt is allocated on the basis of the ratio of assessments receivable in each jurisdiction to total assessments receivable which will be used wholly or in part to pay off the debt.

PCC. Portland Cement Concrete, or concrete. A type of road surface consisting of proportional amounts of sand, water, aggregate and cement.

POSTED LOAD RESTRICTIONS. Any road, street or bridge that has a posted vehicular access restriction based on weight, height or width.

PRIMARY SEWAGE TREATMENT. Refers to pollutant removal by settling in a sewage treatment system.

PRIVATIZATION. Private sector financing, ownership, construction and/or operation of public sector facilities. Can also involve the refinancing of an initial investment with the assistance of the private sector.

RATE OF RETURN. The yield obtainable on a security based on its purchase price or its current market price. This may be the amortized yield to maturity on a bond or the current income return.

REAL INTEREST RATE. The premium required to acquire the use of funds in dollars of constant value. If $100 is borrowed and $110 repaid in one year, but inflation during the year is 8 percent, the real rate of interest is 2 percent.

RECONSTRUCTION. Rebuilding the existing structure to bring it into compliance with existing standards.

RESIDENTIAL EQUIVALENT. The volume of a utility service (generally water or sewer) assumed to represent consumption by an average single family residence. Usually expressed in 100 cubic feet units, this measure is commonly used to compare large-volume users with residential customers for billing purposes.

RESURFACING. Overlaying an existing roadway without widening and without adding curbs and gutters where none existed previously.

REVENUE BOND.* Bonds whose principal and interest are payable exclusively from earnings of an enterprise fund. In addition to a pledge of revenues, such bonds sometimes contain a mortgage on the enterprise fund's property. Such bonds have no claim on the borrower's taxable resources unless otherwise specified in the bond indenture.

RURAL ARTERIAL PROGRAM (RAP). A program providing the County Road Administration Board with one-third of 1 cent of the 16-cent state gas tax earmarked for county rural arterials.

ROAD IMPROVEMENTS DISTRICTS. A special assessment area formed by a local jurisdiction within which property is assessed to pay for road improvements. Each parcel's assessment can be no greater than the amount by which that property is benefited by the improvements. Revenues raised through assessments are applied to improvement costs.

SECONDARY (SEWAGE) TREATMENT. Refers to biological reduction of the organic waste load in a sewage treatment system.

SERVICE CONNECTION. A utility connection or hook-up between the main line and the service recipient; more specifically, a connection from a house, other building or lot to the main line located in the street, alley or easement. Commonly corresponds to the number of addresses to which utility bills are sent.

SEVERANCE TAX. A tax levied on natural resources at the point of extraction.

SINKING FUND. A fund established to account for the accumulation of resources for, and the payment of, general long-term debt principal and interest. Commonly referred to as a debt service fund.

SIX-YEAR STREET PLAN. Washington State law requires that each city and county develop a six-year plan for the repair and reconstruction of its streets, roads and bridges. The program is updated annually and a copy of the program is filed with the Secretary of Transportation.

SPECIAL ASSESSMENT DISTRICT. Districts which utilize compulsory levies made against certain properties to defray part or all of the cost of a specific improvement or service deemed to primarily benefit those properties, e.g., Local Improvement Districts (LID's) and Road Improvement Districts (RID's).

STRUCTURALLY DEFICIENT BRIDGES. Bridges which impede the flow of goods and services because of their inadequacy to carry the loads desiring to use them on a day-to-day basis.

UTILITY SYSTEM DEVELOPMENT FEES. A charge imposed at the time of connection for water, sewer or drainage services which is designed to represent the proportionate share of the cost of the capital system benefiting the connection. Some utilities refer to this fee as a "connection charge".

UNDERWRITER. The investment house or houses that purchase(s) a bond offering from the issuing government to resell it to the general public.

URBAN ARTERIAL BOARD. A program of financial assistance to urban area cities and counties to help local governments meet the increasing need for arterial road, street and bridge facilities. The program is administered by a board composed entirely of city and county officials.

USER FEES. Charges for services provided (rendered). Also referred to as user rates or utility rates, user fees are intended to recover the capital and operating costs associated with the level of usage.

UTILITY LOCAL IMPROVEMENT DISTRICT (ULID). See LID above. ULID's, created only for improvements to sewer, water and other utilities, differ from LID's in that all assessment revenues must be pledged for payment of debt service of bonds issued to finance the improvements.

WATER FACILITIES INVENTORY REPORT. A state-wide data base maintained by the Washington State Department of Social and Health Services (DSHS). It is derived from annual updates required from water utilities and includes information on the basic facilities of water systems.

ZERO COUPON BONDS. Bonds that pay no interest prior to maturity. They are sold at a substantial discount from their face value. Such bonds "lock in" a fixed rate of return for investors.

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WWEMA

Water & Wastewater Equipment
Manufacturers Association, Inc.

APR 6 1984

FRD

April 3, 1984

Mr. Henry Longest
Director, Office of Water Program Operations
U. S. Environmental Protection Agency
1209 East Tower, MH-546
401 M Street, SW
Washington, D. C. 20460

Dear Henry:

It was certainly a pleasure discussing with you WWEMA's interest concerning future funding in relation to the EPA Construction Grants Program.

As you know, WWEMA submitted a position to MAG on October 26, 1983 (copy of funding portion attached). However, WWEMA is in the process of re-evaluating and expanding upon its position.

It is my understanding that a draft position paper on the grants program will be forthcoming from the EPA after July 1, at which time interest groups will have time to submit additional comments. We will make every effort to finalize our position on this subject in advance of that date so that our comments can be taken into consideration when writing your draft.

WWEMA commends the EPA staff in taking time to receive input from the major parties involved in carrying out the grants program. It is crucial that the viewpoints from industry be considered and analyzed when determining the future direction of this vital program. We, as private sector participants, want to share our views in hopes that our comments will provide you with useful insight.

Sincerely,

JOHN M. SCHEER
President

JMS/bb

Enclosure

Comments from the
Water and Wastewater Equipment
Manufacturers Association, Inc.
on the
Construction Grants Program
before the
EPA Management Advisory Group
October 26, 1983

* * *

Funding Stability

The next area which should receive careful consideration by this group, and which is a predominent concern of the equipment supplier industry, is the instability and uncertainty associated with the funding of this program. Since the inception of the program, funding levels have faced major cutbacks, and the amounts appropriated by Congress have often come late in the budget cycle. This uncertainty has resulted in a less-than-favorable, cautious approach by the equipment industry toward committing their resources and investing in new technology research in fear that the market demand will not exist as anticipated.

WWEMA is further concerned with the inability of local governments to meet their matching share of the federal grants. A survey of state water pollution control administrators was conducted by WWEMA earlier this year to identify the major problems facing the states in carrying out the grants program. A majority of the responses indicated that a lack of financial resources on the part of the local governments, and a shortage of federal funds, were the main contributors to the delay in meeting the identified water pollution control

needs of the individual communities. With the percentage of the federal share decreasing to 55 percent beginning October 1, 1984, WWEMA fears that the program could face a major setback, and that the goals of the Clean Water Act will never come to fruition.

WWEMA has, and will continue to urge the Congress to increase authorization levels for the grants program. As much as we realize the budgetary constraints facing the federal government, WWEMA further supports other financing methods such as infrastructure banks, user taxes, privatization, and bonds as resources to meet the $120 billion projected needs by the year 2000.

The agency can, and should play a major role in educating state and local governments on the various alternative financing methods available to supplement the reduction of federal funds and, as previously recommended, should require municipalities to institute a self-sufficient mode of operation prior to receiving grant approval.

WWEMA

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EXECUTIVE COMMITTEE
Chairman of the Board
Chairman
Vice Chairman
Treasurer
President

April 30, 1984

FRP
MAY 1 1984

Mr. George F. Ames
Acting Chief, Policy and
Guidance Branch (WH-595)
Office of Water Program Operations
U. S. Environmental Protection Agency
401 M Street, SW
Washington, D. C. 20460

Dear George:

To date the attached draft position has not been formally adopted as a WWEMA position. However, I thought it might be helpful now that you are in the process of preparing a draft position for the EPA concerning the federal role in municipal wastewater treatment.

Please contact us if we can be of further assistance.

Sincerely,

JOHN M. SCHEER
President

JMS/bb

Enclosure

cc: Mr. Henry Longest

REVISED DRAFT

WWEMA Position Paper
on
EPA Construction Grants Funding
Beyond 1985

The Water and Wastewater Equipment Manufacturers Association, Inc. (Hereinafter, WWEMA) is pleased to have the opportunity to offer our Association's view on the EPA Construction Grants Program after 1985, based on the assumption that the programs enforcement policy and regulations are in place and being carried out with total commitment. Failure to carry out the enforcement policy signed by William Ruckelshaus on January 2, 1984, will only create additional uncertainty and instability within the grants program. Although we will not address our position on enforcement, a copy is attached for your review.

WWEMA strongly believes that the EPA Construction Grants Program has, on balance, served the public interest since its inception in 1972. The water pollution control effort during the past decade has shown positive results. Improvements have occurred in many waterways, largely due to better control of pollution from industry and municipal wastewater treatment plants, with the bulk of enforcement efforts being targeted against industry rather than municipalities. Surface waters nationwide have ceased to deteriorate despite a growing population and an increase in industrial production. This can be directly attributed to the efforts resulting from the grants and limited enforcement program.

Since the enactment of the 1972 Clean Water Act Amendments, $41 billion has been obligated in Federal grants to states for construction of water pollution control facilities, with state and local governments having contributed in excess of $12 billion. This funding has resulted in construction of more than 15,000 wastewater

treatment plants, with close to 3,000 projects currently under construction and an additional 1,000 awaiting construction. The EPA estimated that of these existing facilities, approximately one half would need enlarging, upgrading or replacing.

Recent estimates by the agency further indicate that by the year 2000, approximately $118 billion additional funding would be needed for municipal wastewater treatment systems to comply with the goals of the Clean Water Act. Taking into consideration the fact that annual appropriations levels for the grants program have faced continued cutbacks since its inception, and in light of the reduced federal share from 75% since 1972 to 55% in 1985, it is imperative that serious consideration be given to implement alternative strategies to assist municipalities in achieving their compliance.

Recommendations

1. WWEMA recognizes the inability of the federal government to continue supporting the EPA Construction Grants Program at a level necessary to meet the $120 billion it needs by the year 2000, as projected by EPA. As long as federal monies are available, there will be a reluctance on the part of municipalities in moving ahead on their own without federal assistance to meet the needs of the Clean Water Act. Therefore, WWEMA recognizes some alternative means of financing are required. However, it would be detrimental to the continued progress of the program if all federal support were removed after 1985 and municipalities were faced with total financial responsibility in meeting their mandated compliance deadlines.

WWEMA recommends a combined grants/loan guarantee program starting in 1986, with an eventual phasing out of the grants portion by 1990. This transition will provide continued funding stability while allowing states and municipalities time to develop a financing mechanism for managing their loan guarantee program and achieving self-sufficiency.

The funding authorized and appropriated between fiscal years 1986-90 for both grants and loan guarantees should be set at an annual level of $5 billion under the following formula, with grants beyond 1985 being limited to projects already approved.

	Grants	Loan Guarantee
1986	$5 billion	$0
1987	$4 "	$1 billion
1988	$3 "	$2 "
1989	$2 "	$3 "
1990	$1 "	$4 "

WWEMA supports the commitment of federal funds to a revolving loan guarantee program for use by the states and would also support, if the Congress prefers, a low interest loan program to municipalities. The concept of a state loan guarantee or direct low interest loan program will serve several purposes.

- to assist municipalities eligible to receive federal grants, yet unable to generate sufficient funds to meet their 45% matching share;
- to finance projects that are not included on the state's priority list to receive federal grants;
- to provide funds for project costs which are ineligible for federal grant funding, such as repair, rehabilitation, upgrading, operation and maintenance of existing facilities; and
- to provide a continuous flow of funds through the repayment of loans to the state for reissuance, thus requiring only a short-term investment (seed money) by the federal government.

2. User Fees - WWEMA recommends that the implementation of user fees be encouraged as a means of retiring the loan and to fairly allocate the costs of

treating the discharge of pollutants, as well as to generate revenues to maintain existing systems or provide financing for new projects. User fees would further enhance access to capital markets. Investors are more apt to invest in projects with a dedicated, guaranteed flow of revenue. It is imperative that municipalities design a fee mechanism in order to achieve self-sufficiency.

3. Responsibility must be assumed by the Agency to educate state and local government on other financing methods available to supplement the scheduled reduction in federal grants to insure that continued progress is made in our clean up efforts. WWEMA believes it will take a combination of several forms of financing beyond the proposed loan or loan guarantee program to meet the $120 billion projected needs by the year 2000, as described below.

Privatization - With the monetary limitations facing all levels of government to provide pollution control efforts necessary for a healthy environment, it is apparent that private sector involvement must be encouraged to fill the void. WWEMA supports the use of tax incentives in the form of accelerated depreciation and investment tax credits to enhance the attractiveness for private investors to finance construction of wastewater facilities. Despite the wide interest in privatization, the bond market will continue to be the primary source of funds to take up the slack left by dwindling federal dollars. WWEMA supports the use of industrial development bonds (IDB's) as a means for private industry to raise sufficient capital in building water pollution control facilities. Any restrictions will inhibit municipalities from using privatization financing for municipal wastewater facilities. Also, the use of IDB's for a city may not necessarily result in a charge against that cities bonding limits.

In conclusion, WWEMA believes traditional approaches need to be examined and revised, where necessary, to make the best use of limited public resources. Creative

financing methods can be utilized, where appropriate, to tap new sources of revenues and increase the flexibility of state and local governments in public facilities financing.

The current difficulties and cutbacks in financing wastewater treatment facilities are a result of the changing times and the reconsideration of many of the traditional roles and responsibilities of government at all levels. Amid the turbulence of change, new ideas are constantly emerging, and many of them may succeed where old methods are no longer useful or feasible.

ZIMPRO INC.
EPA CONSTRUCTION GRANTS PROGRAM
PRIORITY CONCERNS

RECEIVED FAX MAR 8 1984

I. & II. Funding & Enforcement

A rational position on funding must be based on recognition that the program for construction of publicly owned treatment facilities has two phases--an initial, one-time "catch-up" phase and a continuing, lower level, "steady state" phase to meet expansion and replacement requirements. The Federal Construction Grants program was originally intended to provide a major part of the financing for the "catch-up" work. At our present rate of progress, it will be into the next century before all of the estimated backlog or "catchup" requirements are met. Congress has legislated that this is not acceptable--that fishable and swimmable streams are the goal by 1988. Any realistic effort to reach this goal will require considerably more funding, made quickly available, through increased Federal grants or through the development of alternative sources.

A strong argument can be made for increased Federal Grants funding at this time. The Federal Grants program is in place, it has been fine tuned, and can quickly be expanded. The present period of low construction activity presents an ideal opportunity for accelerating the rate of POTW construction without need for concern over competition for limited construction manpower or material resources.

In the longer term, we must recognize the trend toward declining grant funding. It seems probable that the grants program will be phased out even before all of the backlog work is completed. Therefore, one of the highest priorities becomes the development and encouragement of alternative funding. It is essential that present tax advantages for private investment and public facilities be retained and not be depleted or reduced. The EPA's "POTW Self-Sufficiency/ Compliance" study should include a comprehensive, national level review of all reasonable sources of alternative funding, to establish the amount which can be raised in this manner, and to plan the coordination of the growth of these sources with the shrinkage of federal grants. If found to be necessary, additional tax advantages or other economic incentives should be put in place in an orderly manner, to support the financial transition while accelerating progress of the environmental cleanup. New, innovative incentives should be considered in the study. For example, perhaps the distribution formula for federal grants could be revised during the transition period, to provide matching funds in some proportion to the amount of private financing a local grantee has obtained.

Without the incentive of federal grants, enforcement is left as the only driving force to keep the environmental cleanup program moving. It has proven to be effective in the industrial arena, and must now be equally applied to local public dischargers. But it must be reasonable enforcement; starting with clearly delineated and communicated guidelines and compliance deadlines. These must be tied to the recognition that everything cannot be done at once. Cleanup needs must be prioritized based on water quality impacts, and matched to availability of resources.

Once in place, all publicly owned treatment facilities should be organized on a financially self-supporting basis, generating sufficient revenues to support high quality operations and maintenance, and to finance future replacement and/or expansion of their facilities. It must be recognized, however, that there is a fundametal difference between the water pollution control "utility" and the water, power or electrical utilities. The WPC utility does not deliver a product to a customer who will evaluate its quality, adequacy of service, etc. Pollution control performance feedback is provided only by compliance monitoring and enforcement activities, which, therefore, are essential on an ongoing basis, to close the loop.

III. Operations and Maintenance

The key to proper operations and maintenance is recognition that it is the most important factor in obtaining optimum performance from a particular facility, and that it is ultimately the sole responsibility of the grantee. Once these facts are fully comprehended by Owners, it will be apparent that improvements in numerous areas will produce a direct improvement in O & M. These include:

1. Adequate financial planning, with sufficient revenues being generated from user charges.

2. Operator professionalism and recognition, including:

   a. Mandatory certification programs, perhaps with higher standards than currently set.

   b. Adequate compensation and career advancement opportunities with some industry-wide position descriptions, salary ranges, etc.

   c. Initial and continuing training. This could be best accomplished through EPA financial assistance to establish programs at regional technical schools and universities, with staff composed of professionals in the field.

3. Improved physical plants. Needs in this area include more attention to O & M requirements in original plant designs, and tighter specification preparation and bid evaluations to assure that quality equipment is obtained.

4. Alternatives to owner operation, such as utilization of contract O & M services from private sources where appropriate.

5. Public recognition; positive and negative. Facilities which perform exceptionally well under real world conditions should be sought out and publicly recognized. Those which consistently fail to perform should be subject to unfavorable publicity. Public option is still an effective force in environmental issues.

6. Penalties. Although last in terms of preferred motivation, means must exist to convince local political leadership that it is more costly to allow their facility to operate out of compliance than to provide proper O & M.

IV. Project Certification

According to PL 97-117 (the 1981 Clean Water Act amendments), the grantee is fully accountable to the EPA and responsible for the successful design, construction, operation and certification of the POTW project within its NPDES permit. However, amended Section 204 (d) of the Clean Water Act requires this certification process be "supervised" by "the engineer or engineering firm supervising construction or providing architect engineering services during construction . . ." The word "supervise" offers some very special legal problems for the consulting engineers. However, since this word is used, any dilution of this intent of Congress by the regulations' guidance would be a misinterpretation. Perhaps this supervisory function would be more palatable if it were filled by an independent third party, rather than by anyone previously involved in the planning, design or construction functions of the project. This third party would hold all previously involved entities (design, equipment supply, construction, etc.) accountable for their own performance until the project is certifiable.

V. Sludge

The Clean Water Act requires the EPA to regulate the management of sludge, with appropriate disposal methods that protect the public health and environment. Sludge Management is an interstate program requiring national level standards setting, direction, guidance, and protection of public health, as mandated by Congress. Regulations should

recognize that the presence of many metals/toxics in these residues must limit the cavalier use of land disposal. A permit system, either incorporated into or similar to the NPDES permit system should be instituted as a control device.

The current EPA Sludge Management Task Force draft policy, entitled "Policy on Municipal Sludge Management" dated October 6, 1983, should be supported by MAG. It encourages application of a variety of use and disposal practices, based on analysis of individual situations, rather than attempting to establish a preferred method with alternate practices only as specific exceptions. It is a realistic philosphy, which will prove to be very workable and able to accommodate the great variety of situations which will be encountered in the field. The concept of control of sludge volume and quality through close integration of the wastewater and sludge treatment processes is also very important and should be strongly emphasized to design engineers. However, MAG should review Item 1 of the Principles Guiding this Policy Implementation. We feel it is too narrow and restrictive compared to the overall thrust of the policy. A general requirement that " . . contaminent levels in municipal sludge should be controlled at the source through changes in waste generating activities or through pretreatment of wastewaters" could at times result in unnecessary double treatment. In some specific situations, analysis could indicate preference for a means of sludge disposal, such as incineration and heat energy recovery, which is more tolerant of certain contaminents in the sludge than an alternate means such as agricultural usage might be. In such a case, the best overall solution might be to allow the contaminent to come to the POTW and be removed in the sludge there, rather than requiring pretreatment.

No new sludge management legislation or regulations should be proposed or enacted until the EPA Task Force and any designated successor completes the work outlined in the above policy.

The increased availability of EPA R/D funds for intra-mural/extra-mural efforts would assist the EPA to find answers on sludge disposal, either by land, or in ocean, or by thermal processing.

VI. Construction Claims

The MAG should encourage the efforts of the Joint Committee (WWEMA/EPA/ACEC/AGC) through its subcommittee on construction claims as chaired by Mr. Ted V. Lutge (ACEC). MAG should request to review any draft policies for comment. EPA should be encouraged to include a final policy in its' CG-84 manual.

VII. I/A Technology

This program is beneficial and desirable but under-utilized, as there is a hesitancy by the consulting engineering community to use the program. The Engineers should receive some financial incentives for including I/A processes in their projects. At present, they only represent a risk to the engineer's reputation without an incentive to take the risk, even though the 100 percent EPA rebate program does protect the grantee. Presently, with no reward to the Engineer for success, he is only assured of headaches for failures. Funding and use of field testing in Step I of I/A technologies as authorized in PL 97-117 needs further emphasis by the EPA.

VIII. Pretreatment/Toxics

Although the Act was originally written around the assumption that all of a list of specified toxic pollutants were to be pretreated at their source to avoid harm to the POTW treatment, Congress later became convinced that there were some cases where these pollutants could be at least partially removed in a POTW without harm to the overall treatment process. EPA responded to this by including in their Pretreatment Standards Regulations, a detailed procedure by which POTW's could qualify to grant removal credits, and thereby reduce the pretreatment requirements for the appropriate point source dischargers.

There is much debate over the issue of reduced pretreatment, stimulated by a combination of administrative shortcomings and technical knowledge gaps. EPA is forming a task force, with outside involvement, to study the entire range of pretreatment implementation issues, with the intent to clarify regulatory problems within the scope of existing legislation.

At the same time, there is an effort being made to further amend the Act, addressing this issue. Proponents of this new legislation prefer outlining different qualifications by which to permit a local POTW operating authority to establish an alternative local pretreatment program, and thereby "opt out" of compliance with the categorical pretreatment regulations in specific cases. New legislative direction would probably result in another 3 to 5 year round of debate, rulemaking and legal challenges to whatever implementation system is devised by EPA. This would tend to halt movement toward detailed design and construction of facilities, perhaps by both point source dischargers and the POTW's.

There is momentum and general agreement to do something about improving implementation of alternative pretreatment programs, since it is reasonable to utilize POTW capabilities

to the fullest possible extent, and to avoid unnecessary duplication of treatment. There should be flexibility in the pretreatment requirements for point sources discharging into POTW's. However, there is no need for additional legislation to improve the implementation of removal credits and/or alternative local pretreatment programs. EPA has sufficient existing legal authority to devise an effective administrative and regulatory framework for such programs using the newly formed Task Force and should be encouraged to see that this comes to pass.

IX. Second Grants

The "catch-up" philosophy of PL 92-500 as enacted in 1972 deserves continued support. Federal funding under PL 92-500 should be a one-time grant given to assist the grantee to "catch-up" to an acceptable level of treatment. However, any grantee who has received funding under federally funded clean water programs prior to PL 92-500 should not be ineligible for PL 92-500 grants.

X. Plant Abandonment

The current EPA policy requires the EPA to recoup the fair market value of abandoned facilities constructed with federal funds. This must be approached on a case-by-case review basis, taking into account, among other things, the conditions of the NPDES permit which required the original construction. If this permit has since changed, a new set of cost-effective analyses should be required and the grantee not be penalized for abandoning facilities, if the most cost-effective alternative includes such an abandonment.

XI. Combined Sewer Overflows

The goals of the Clean Water Act cannot be met without addressing and regulating CSO as a source of pollution. It is a major contributor. Federal funding should not exclude CSO work. Past allocations of funds to CSO projects have been heavily in favor of capital intensive sewer separation and storm water storage projects, and have tended to ignore separate CSO treatment facilities even when they are cost-effective and capable of meeting water quality objectives of the Clean Water Act. Prioritization for future CSO work should be determined by the same method used for POTW work (water quality impacts) and one integrated priority list should be determined for both.

XII. Progress Payments

The mandating of progress payments for specifically manufactured undelivered major equipment items is necessary for the economic viability of suppliers, leveling their cash flow

outlays. It also tends to increase competition from smaller firms that have minimal capitalization. Also, the posting of bonds by manufacturers, as an alternate to withholding of cash retainage by grantees throughout long post-construction periods, should become a standard practice in the industry.

XIII. Non-Point Sources

The goals of the Clean Water Act cannot be met without addressing and regulating non-point source pollution. This source of water pollution can cause serious degradation of surface water. The control of these sources should remain with the EPA, not with a new national commission. Federal funds should be available to the states/local agencies to encourage the development of a well integrated, non-point management plan.

ZIMPRO

POLLUTION CONTROL SYSTEMS

April 12, 1984

APR 18

RECEIVED FRD

Mr. George F. Ames
Acting Chief
Policy and Guidance Branch (WH-595)
Office of Water Program Operations
U.S. EPA
401 M Street, S.W.
Washington, D.C. 20460

Dear Mr. Ames:

In response to EPA's call for papers to facilitate the conduct of the agency study on long-term, self-sufficiency of a municipal wastewater facility, we are pleased to submit a list of "priority concerns" by Zimpro Inc. on the EPA Constructions Grants Program. These positions should supplement your work in this area.

In addition, we are pleased to submit a paper entitled, Financing in the Absence of Federal Funding, by Mr. Oscar J. Carlson, Vice President, Public Finance Division, Smith, Barney Inc., New York City. This paper by an investment banker will shed some light on the access to capital and its formation in the public finance area. This submission has the approval of Mr. Carlson.

We welcome the opportunity to work with your staff in this development of alternative strategies for providing federal assistance.

Very truly yours,

ZIMPRO INC.

J. Robert Nicholson
Vice President
Government Affairs

kfc

Enclosure

cc: Mr. Oscar J. Carlson

MAILING ADDRESS
ROTHSCHILD, WISCONSIN 54474

ICWP

WASHINGTON D.C. CONFERENCE

February 28-29, 1984

FINANCING IN THE ABSENCE OF FEDERAL FUNDING

Oscar J. Carlson

Good Morning, I am delighted to be here and to have this opportunity to address ICWP on behalf of the investment banking community.

As I prepared for my talk this morning I must confess that the more I learned about ICWP and its STATEMENT OF POLICY (1983-84), the more I found that this organization, in its attempt to find solutions to our water problems, has already thoroughly addressed mostly all of the critical issues.

However, there are a few questions remaining. I believe from the perspective of the investment banking community we can shed some light on the subjects of access to capital and capital formation. Given the recent volatility in the capital markets and the record high interest rates, Wall Street has been extremely busy developing ways to convert the long-term ability to repay debt into up-front financing capability.

We are making progress. Solutions are being found as we collectively address legal, engineering and financial parameters. Opportunities for these respective disciplines to work together with water officials are critical to providing the framework needed to maximize opportunities with less than unlimited resources. ICWP is to be congratulated in taking the lead role in providing such a forum. I welcome this opportunity to lend assistance to your organization in seeking financial solutions to our nation's water problems.

The water community is currently being bombarded from all directions regarding the need to do something about our growing water problems. Foremost among the questions being asked is "Where will the money come from to finance our needs?"

Suggestions being offered seem to center around the topics of COST-SHARING, COST RECOVERY, PRIVATIZATION AND CREATIVE FINANCE.

I will discuss each of these areas from the perspective of the investment banking community in my remarks this morning both as to opportunities, market barriers, and proposed and existing legislation affecting the cost of financing. I will also discuss the need for developing new and changing relationships between the water community, investment bankers, consulting engineers, legal counsel, contractors and equipment suppliers.

Cost-Sharing

We have heard from our friends in Washington this morning about the administration's policy of cost sharing based on the President's Dear Paul letter of January 24.

Senator Abnor & Mr. Gianelli have given us a clear picture this morning outlining cost sharing which provides us a road map to the solutions to all our problems. So let us all jump up and go forth to implement the programs that will serve the needs of the citizens of our respective communities. Somehow it is not quite that simple — for we have yet to develop the framework that will make cost-sharing work effectively. We in the financial community see some problems that must be resolved if cost sharing is truly going to work.

1) Under Section 48 of the Internal Revenue Code there is no ITC available for property built for use by governmental entity.

2) In the case of a hydro-power project financed with tax-exempt bonds, if the power is marketed by a Federal Agency, the flow of revenues back through this agency could be interpreted as a government guarantee of debt causing a loss of tax-exempt status. Also, marketing of this power and energy to non-exempt persons (2-county rule and 25% rule) can cause a loss of tax-exempt status.

3) Were H.B. 4170 to become law in its current form we would be severely limited in the use of IDB's as a source of tax-exempt financing for these public purpose projects. Also under the leasing/service contract language wastewater and water treatment projects are not offered the exempt status so necessary if cost-sharing is to work effectively for any significant number of projects.

We would encourage:

1) The adoption of the service contract language in S2062 providing exempt status to wastewater projects.

2) Elimination of the state caps on IDB's.

3) Or, at minimum, an exemption from state caps for water resource and water quality projects which clearly are "public purpose" regardless of how they are financed (HFOA's position notwithstanding).

Congress, in my judgment, should be careful to distinguish tax-exempt borrowing (IDB's) for the private sector from tax-exempt borrowing through the private sector for public purpose projects. In the absence of federal funding it would seem reasonable, if the states and the political subdivisions thereof are to bear an ever increasing share of the financial burden for water treatment facilities that IDB's and tax benefits be available to communities seeking an affordable method to provide the services so essential to their economic viability. Water resource and water quality as well as waste disposal certainly belong in this category.

We in the water community should hitch our wagon to the solid waste lobby which is some four years ahead of us in demonstrating to Congress the need for tax-exempt status for solid waste projects involving the private sector. Their learning curve is very high in terms of developing the contractual language acceptable to both municipalities and the private sector regarding control, non-performance guarantees, rate structuring, etc. The same relationships are required in the wastewater treatment area -- albeit for different reasons.

My point is simply that if we are to attract private capital into these traditionally public projects we must provide the economic incentives otherwise available for capital investment. The use of IDB's and tax benefits are a much smaller price, short term, for Treasury to "pay" than direct funding through appropriations. The argument can well be made that such government subsidy comes back to Treasury several fold in the way of tax revenues for the expanded economy resulting from the improvement of these basic services. A quick economic analysis of the history of Reclamation Projects certainly confirms this to be the case.

If cost sharing at Federal sites is expected to produce the desired cash contributions from either the private sector or state and local government, legislation is required, either generic or project specific, providing not only the right of the Federal Government to enter into contracts authorizing ownership for tax purposes and as does S1521, but in addition, providing tax-exempt status regardless of marketing agent and type of beneficial user.

We need an attractive enough financing mechanism (i.e., tax-exempt bonds and tax benefits) to provide the flexibility necessary to structure project specific financing programs to 1) track the cost of alternative services (as in the case of hydro vs. thermal power) and 2) make it practical to team up with the Federal Government given its regulatory bias for procedure.

If the intent of the Administration through its policy on cost-sharing is to place the Federal Government in direct competition in the capital marketplace for non-federal funds to finance its projects, then we must be certain at the same time to provide a comparable return on that capital to that available for non-federal projects. Additionally, the ultimate cost of the service (product) provided must be comparable to the alternatives available.

Cost-Recovery

In the arena of cost-recovery, we have, in my judgment, the greatest challenge to our creative skills regarding both financing alternatives and overcoming our respective individual biases based on political boundaries. The opportunities to develop a cost effective Federal/State/Local format abound.

If Federal grants are being phased out, Federal loans and credit enhancements could well take their place. A similar situation makes sense at the State

level. Accumulation of capital is the critical factor in developing a grant program. If instead, as we accumulate capital we were to leverage it through loans and credit enhancements without depleting principal we could reduce the costs of a far greater number of projects; thus creating an increase in total benefits for water resource and water quality projects throughout the country. Some very creative programs are already underway in many states. The following are some examples:

The State of Utah created a Bureau of Water Pollution Control to provide (7.3%) loans for wastewater projects after approval of their necessity. Further, Utah is the first state to my knowledge to offer (0%) loans to communities to purchase credit enhancements for bond issues. These may take the form of Bond Insurance or a Letter of Credit, the premium cost of which would be substantially less than the savings on the interest rate on the bond issue due to a higher credit rating. This would appear to be an excellent way of leveraging small amounts of state capital into significant savings for municipalities. Utah is also encouraging the "Regionalization of Wastewater Facilities" in an attempt to provide efficient quality operations that will prove cost effective based on economies of scale.

In Arizona a clear choice is being made between water intensive agriculture and industrial growth. This decision means Arizona water supply could support a population of 20 million as opposed to the present 2.8 million. A water planning law has been passed which would equate withdrawal rate with recharge capacity by the year 2025. Critical items include: All "size" wells will be metered and withdrawal fees charged, an override of the old law restricting the sale of water rights, anticipation that supply and demand will cause farmland to be sold off, and finally that upon completion the Colorado River Project water will be sold at approximately the limit of profitability for agricultural use causing farmers to sell their groundwater rights.

In Denver, Colorado a pilot plant is being designed to provide high quality drinking water from treated sewage effluent. Seven years of testing will be required to determine the safety of the project. If this process proves feasible it could provide a major step toward solving our water shortage problems.

In Boston a demand reduction program based on legislation, education and public awareness is underway. In 1977 Chapter 436 of the Massachusetts Acts and Resolves created the Boston Water & Sewer Commission - an independent self financing agency. Creation of the BWSC took rate structures out of the political arena in an attempt to provide a reliable revenue stream to fund repairs and improvement. In 1982, Chapter 286 provided for matching grants for 1) protection and conservation of groundwater aquifers, 2) methods to reduce water use in public and private buildings and 3) leak detection and repairs.

The education program through the school system is aimed at creating water-wise citizens using films, teaching manuals, and logo and poster contests.

The public awareness program is growing around the water Conservation Handbook published by the Chamber of Commerce.

In Tennessee the Local Development Authority issues bonds and lends the proceeds to various communities at a much lower rate than that at which they could individually borrow. Loans are limited in amount such that the annual payments will not exceed an amount equivalent to the community's portion of State shared revenues in the prior year. In the event of a shortfall in payments by a community these funds are withheld by the State for payment on the loan thereby enhancing the security of the bonds.

The Oklahoma Water Resources Board recently issued bonds for its first blind pool offering. In this case the communities can qualify for loan proceeds after the fact. In an effort to make funds available to unrated communities the OWRB has agreed to limit such loans to 15% of the proceeds. These loans have a credit enhancement from a pool of $25 million of designated state revenues in the amount of $7.5 million for loan guarantees. This blind pool offering is the first of its type to be successfully marketed.

In St. Petersburg, Florida, an effort to meet State requirements for discharge into the Tampa Bay is being met by a dual distribution system. Treated effluent will be used for irrigation purposes at 1/7 the cost of potable water. When completed this system is expected to yield a zero discharge into the Bay, far exceeding state requirements with the additional benefit of adding 10 to 15 years to the life of the existing water supply.

The Washington, D.C. Metropolitan area (WMA) struggled for some 30 years to find a solution to low water flows in the Potomac River caused by economic growth. The water supply was collectively controlled by:

The Corps

States of Maryland & Virginia

Interstate Commerce on the Potomac River Basin

Fairfax County Water Authority

Washington Suburban Sanitary Commission

Metropolitan Washington Area Council of Governments

(others)

When the problem became an impending crisis, this diverse group of agencies structured a unique marriage of institutional cooperation and technological effort which after working through a maze of engineering, social, environmental, economic and political problems yielded a Systems Analysis to augment the region's water supply.

Through water management programs utilities are: 1) making non-metered water a thing of the past, 2) redesigning rates to promote conservation, 3) pricing services based on demand, 4) utilizing capacity reservation and connection charges to offset user fees, 5) shaving peak load and, 6) otherwise changing public attitudes to reflect the use of water as a "scarce resource" to be managed for the public good.

Many other creative programs are underway throughout the country. To take maximum advantage of those solutions currently being developed the water community needs a clearinghouse of information readily available to those seeking creative solutions to their water problems. If ICWP is not the appropriate body to provide such a service, certainly your assistance in creating such an entity would be invaluable.

In the cost-recovery mode we have successfully developed several tools for credit enhancement to reduce the cost of borrowing for specific projects. Among these are the following:

Bond Insurance

Letters of Credit

Federal Guarantees

State Guarantees

Moral Obligations

Taxes

Special Assessments

User Fees

A determination as to which of these will best suit the specific situation needs to be made in the context of the political framework, statutory limitations, technology selected, duration of construction, credit rating of the issuer and current and anticipated market conditions.

Time unfortunately does not permit a detailed discussion of these alternatives at this time. However, regional workshops would be an excellent opportunity to discuss more specific applications of these alternatives.

Privatization

To the degree you are successful in attracting equity capital, taking advantage of tax credits, benefitting from efficiencies and economies of scale from private construction and operation, and negotiating performing guarantees you can provide a service to your utility customers at a lower cost. Outlined below are some benefits and concerns regarding the use of private funds to assist in the financing of what have traditionally been public purpose projects:

I. BENEFITS TO COMMUNITY

Provides Additional Source of Funding

Reduces Financial Burden

Produces Lower User Fees

Shorter Construction Period

Possible Operation Efficiencies

II. BENEFITS TO PRIVATE SECTOR

Investment Tax Credits

Energy Tax Credits

ACRS Depreciation

Deductibility of Interest

Industrial Revenue Bonds

Minimal Regulatory Involvements

III. QUESTIONS TO BE RESOLVED

Control Over Project

Non-performance Recourse

Setting of Rates

Municipal Employee Status, Union Contracts

Purchase Price at Termination of Lease

Future Expansion of Project

Post Tax-benefit Sale

IV. MARKET BARRIERS

Bid Procurement Requirements

Term of Contract

Regulation by Public Utility Commission

Public Sale of Securities

Public Awareness

Rate Structures

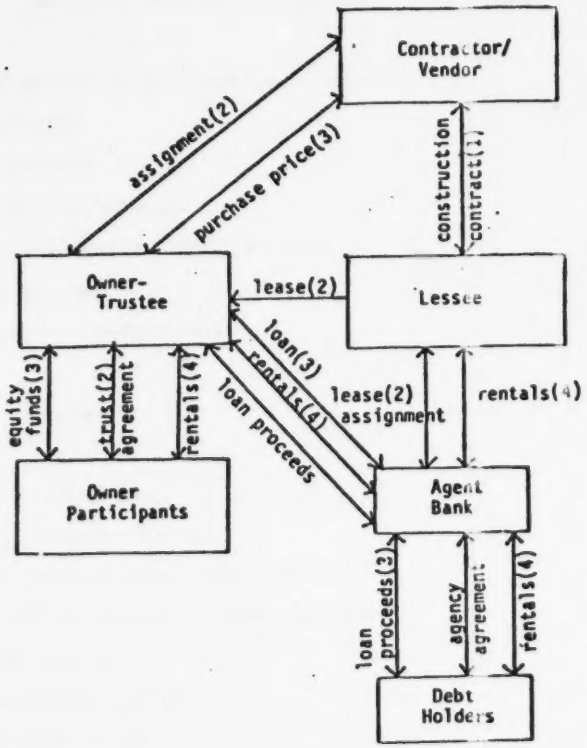
Pending Legislation (Exemption for Solid Waste)

Questions of ownership, control, performance, rates, municipal employee status, union contracts, purchase price, etc., all must be dealt with in the contract documents. We have developed the necessary contractual relationships acceptable to both the public and private sectors through pioneering efforts in the field of resource recovery (solid waste). We stand ready now to apply many of these same principles to water resource and water quality projects.

We need, therefore, the same exemptions for our water projects as have been lobbied for in solid waste. If the needed private sector funds are to be forthcoming to finance our water needs we must preserve the use of IDB's, service contracts and tax benefits for these public purpose projects. On the state level we need to resolve those statutory problems listed under market barriers above.

The following diagram provides an example of the contractual relationships and flow of funds that would exist for a leasing transaction involving owner participants (tax ownership), lessee, contractor/vendor, debt holders, owner-trustee and the agent bank. The numbers (1), (2), (3) and (4) indicate a sequence in the flow of transactions. As you can see from the diagram these are complex transactions requiring a significant amount of time and effort once the engineering is completed and the technology selected. If your financial consultant is on board early as a member of your team you have the advantage of his assistance in selecting the best alternative available — which in turn translates to providing the best service at the lowest cost.

DIAGRAM



Creative Finance

Because of the history of the nature of financing water supply and water treatment facilities -- water utilities have not for the most part taken advantage of the skills of the investment banking community in developing, structuring and financing their programs, why? The non-Federal funding of most water projects has traditionally been financed through the use of G.O. or Revenue bonds sold at public sale, in many instances after a public referendum approving the sale, required by State statute.

Given this scenario the Underwriter/Investment Banker does not become involved at all in your financing program until such time as his bid is selected as the winning bid -- after in fact all the planning and structuring have been completed. We are therefore of no assistance, under this scenario, in helping you to determine and select the best financial structure available to you given the political framework within which you must operate. Further we have not been of assistance in helping you to improve that framework should you have a need to do so. In addition you very likely will pay a higher interest rate for your bond issue because we have not established a market for your issue in advance of the date of sale.

On the other hand, in the situation where you (are free to) select an investment banker, and (choose to) bring us on board early in the developmental stages of your program we are prepared to assist you throughout your planning process with our fee being paid only if, and when you actually finance your program. Under this scenario you have the advantage of having your financial planner (the one who will eventually put his capital at risk to make your project a reality) on board to work with your staff, consulting engineer, counsel and in certain cases your equipment supplier to structure

the best possible solution to providing your needs at the lowest possible cost. And further you avoid the risk of pursuing a program that may in fact not be financeable or far more costly to finance than the solution developed by the team approach that includes your investment banker as a valuable source of input from the early stages of project development.

During the past five years we have experienced more change and more volatility in the bond market than in the preceding forty years. From recording setting interest rates and double digit inflation to severe economic cycles and record government spending and deficits, we have learned that we simply cannot afford to provide certain services that here-to-fore have been taken for granted. Wall Street has responded to this market volatility by developing creative instruments designed to: 1) reduce the overall cost of borrowing, 2) take advantage of "windows" in the capital markets, 3) make use of pay as you go opportunities, 4) attract equity capital, and broaden the investor base for both interim and long term debt issues.

The following lists of long and short term instruments are examples of some of the techniques currently being used to structure debt issues.

SHORT TERM INSTRUMENTS

Bond Anticipation Notes

Tax Anticipation Notes

Revenue Anticipation Notes

Grant Anticipation Notes

Tax-Exempt Commercial Paper

Variable Rate Notes

Variable Rate Demand Notes

Construction Notes

LONG TERM SECURITIES

Option Tender (Put) Bonds

Warrants

Original Issue Discount Bonds

Zero Coupon Bonds

Compound Coupon Bonds

Variable Rate (Demand) Bonds

Leasing

Certificates of Participation

Industrial Development Bonds

Book Entry Bonds

Which of these we would use in a given situation is dependent upon current anticipated market conditions, term of construction, rate making flexibility, statutory limitations, political climate and the availability of credit enhancements. As in the case of credit enhancements this forum does not provide adequate time to discuss the relative merits or uses of each of these instruments. Perhaps the forum of Regional Workshops would be best suited to this purpose.

ROLE OF THE INVESTMENT BANKER

If the water community is to take full advantage of the skills the investment banking industry brings to bear on the disciplines of the marketplace a new set of relationships must be developed.

In addition to the consulting engineer, the investment banker will be selected based on a conscious decision that the firm selected is best equipped to provide the required services. In many cases these firms will be selected as a team to develop the best alternative assuming a certain preferred technology.

The role of the investment banker would under this scenario include the following:

DEVELOP A FINANCING PLAN

Change Political and Legislative Framework

Monitor Changes in Tax Law

Select Financing Alternative

Structure Financing Program

Market Equity and Debt (Short Term Instruments)

Refund Outstanding Debt

These services are normally provided either in the capacity of financial advisor or investment banker. As a financial advisor compensation for services can be paid as a flat fee, per annum, or on a contingency basis upon the closing of the debt issuance. As an investment banker these services are often provided at no fee with the only compensation being the bond discount or placement fee at the time of financing. On rare occasions the role of financial advisor is transferred to that of investment banker at the time of debt issuance.

CONCLUSION

On the pragmatic level, the issue becomes one of identifying barriers (in state or local law) to a variety of funding mechanisms and moving constructively to resolve them. In developing a well thought out financing strategy for a particular state or locality, one must take into account the community's short- and long-term capital formation needs including reasonable options for technical and engineering solutions.

If in fact these strategies are to be developed so as to take maximum advantage of the financing alternatives available, a new type of relationship with the investment banking community is the next logical step in the sequence of events critical to solving our water problems.

Thank you.

ZIMPRO INC.
EPA CONSTRUCTION GRANTS PROGRAM
PRIORITY CONCERNS

I. & II. Funding & Enforcement

A rational position on funding must be based on recognition that the program for construction of publicly owned treatment facilities has two phases--an initial, one-time "catch-up" phase and a continuing, lower level, "steady state" phase to meet expansion and replacement requirements. The Federal Construction Grants program was originally intended to provide a major part of the financing for the "catch-up" work. At our present rate of progress, it will be into the next century before all of the estimated backlog or "catchup" requirements are met. Congress has legislated that this is not acceptable--that fishable and swimmable streams are the goal by 1988. Any realistic effort to reach this goal will require considerably more funding, made quickly available, through increased Federal grants or through the development of alternative sources.

A strong argument can be made for increased Federal Grants funding at this time. The Federal Grants program is in place, it has been fine tuned, and can quickly be expanded. The present period of low construction activity presents an ideal opportunity for accelerating the rate of POTW construction without need for concern over competition for limited construction manpower or material resources.

In the longer term, we must recognize the trend toward declining grant funding. It seems probable that the grants program will be phased out even before all of the backlog work is completed. Therefore, one of the highest priorities becomes the development and encouragement of alternative funding. It is essential that present tax advantages for private investment and public facilities be retained and not be depleted or reduced. The EPA's "POTW Self-Sufficiency/ Compliance" study should include a comprehensive, national level review of all reasonable sources of alternative funding, to establish the amount which can be raised in this manner, and to plan the coordination of the growth of these sources with the shrinkage of federal grants. If found to be necessary, additional tax advantages or other economic incentives should be put in place in an orderly manner, to support the financial transition while accelerating progress of the environmental cleanup. New, innovative incentives should be considered in the study. For example, perhaps the distribution formula for federal grants could be revised during the transition period, to provide matching funds in some proportion to the amount of private financing a local grantee has obtained.

Without the incentive of federal grants, enforcement is left as the only driving force to keep the environmental cleanup program moving. It has proven to be effective in the industrial arena, and must now be equally applied to local public dischargers. But it must be reasonable enforcement; starting with clearly delineated and communicated guidelines and compliance deadlines. These must be tied to the recognition that everything cannot be done at once. Cleanup needs must be prioritized based on water quality impacts, and matched to availability of resources.

Once in place, all publicly owned treatment facilities should be organized on a financially self-supporting basis, generating sufficient revenues to support high quality operations and maintenance, and to finance future replacement and/or expansion of their facilities. It must be recognized, however, that there is a fundametal difference between the water pollution control "utility" and the water, power or electrical utilities. The WPC utility does not deliver a product to a customer who will evaluate its quality, adequacy of service, etc. Pollution control performance feedback is provided only by compliance monitoring and enforcement activities, which, therefore, are essential on an ongoing basis, to close the loop.

III. Operations and Maintenance

The key to proper operations and maintenance is recognition that it is the most important factor in obtaining optimum performance from a particular facility, and that it is ultimately the sole responsibility of the grantee. Once these facts are fully comprehended by Owners, it will be apparent that improvements in numerous areas will produce a direct improvement in O & M. These include:

1. Adequate financial planning, with sufficient revenues being generated from user charges.

2. Operator professionalism and recognition, including:

   a. Mandatory certification programs, perhaps with higher standards than currently set.

   b. Adequate compensation and career advancement opportunities with some industry-wide position descriptions, salary ranges, etc.

   c. Initial and continuing training. This could be best accomplished through EPA financial assistance to establish programs at regional technical schools and universities, with staff composed of professionals in the field.

3. Improved physical plants. Needs in this area include more attention to O & M requirements in original plant designs, and tighter specification preparation and bid evaluations to assure that quality equipment is obtained.

4. Alternatives to owner operation, such as utilization of contract O & M services from private sources where appropriate.

5. Public recognition; positive and negative. Facilities which perform exceptionally well under real world conditions should be sought out and publicly recognized. Those which consistently fail to perform should be subject to unfavorable publicity. Public option is still an effective force in environmental issues.

6. Penalties. Although last in terms of preferred motivation, means must exist to convince local political leadership that it is more costly to allow their facility to operate out of compliance than to provide proper O & M.

IV. Project Certification

According to PL 97-117 (the 1981 Clean Water Act amendments), the grantee is fully accountable to the EPA and responsible for the successful design, construction, operation and certification of the POTW project within its NPDES permit. However, amended Section 204 (d) of the Clean Water Act requires this certification process be "supervised" by "the engineer or engineering firm supervising construction or providing architect engineering services during construction . . ." The word "supervise" offers some very special legal problems for the consulting engineers. However, since this word is used, any dilution of this intent of Congress by the regulations' guidance would be a misinterpretation. Perhaps this supervisory function would be more palatable if it were filled by an independent third party, rather than by anyone previously involved in the planning, design or construction functions of the project. This third party would hold all previously involved entities (design, equipment supply, construction, etc.) accountable for their own performance until the project is certifiable.

V. Sludge

The Clean Water Act requires the EPA to regulate the management of sludge, with appropriate disposal methods that protect the public health and environment. Sludge Management is an interstate program requiring national level standards setting, direction, guidance, and protection of public health, as mandated by Congress. Regulations should

recognize that the presence of many metals/toxics in these residues must limit the cavalier use of land disposal. A permit system, either incorporated into or similar to the NPDES permit system should be instituted as a control device.

The current EPA Sludge Management Task Force draft policy, entitled "Policy on Municipal Sludge Management" dated October 6, 1983, should be supported by MAG. It encourages application of a variety of use and disposal practices, based on analysis of individual situations, rather than attempting to establish a preferred method with alternate practices only as specific exceptions. It is a realistic philosphy, which will prove to be very workable and able to accommodate the great variety of situations which will be encountered in the field. The concept of control of sludge volume and quality through close integration of the wastewater and sludge treatment processes is also very important and should be strongly emphasized to design engineers. However, MAG should review Item 1 of the Principles Guiding this Policy Implementation. We feel it is too narrow and restrictive compared to the overall thrust of the policy. A general requirement that ". . . contaminent levels in municipal sludge should be controlled at the source through changes in waste generating activities or through pretreatment of wastewaters" could at times result in unnecessary double treatment. In some specific situations, analysis could indicate preference for a means of sludge disposal, such as incineration and heat energy recovery, which is more tolerant of certain contaminents in the sludge than an alternate means such as agricultural usage might be. In such a case, the best overall solution might be to allow the contaminent to come to the POTW and be removed in the sludge there, rather than requiring pretreatment.

No new sludge management legislation or regulations should be proposed or enacted until the EPA Task Force and any designated successor completes the work outlined in the above policy.

The increased availability of EPA R/D funds for intra-mural/extra-mural efforts would assist the EPA to find answers on sludge disposal, either by land, or in ocean, or by thermal processing.

VI. Construction Claims

The MAG should encourage the efforts of the Joint Committee (WWEMA/EPA/ACEC/AGC) through its subcommittee on construction claims as chaired by Mr. Ted V. Lutge (ACEC). MAG should request to review any draft policies for comment. EPA should be encouraged to include a final policy in its' CG-84 manual.

VII. I/A Technology

This program is beneficial and desirable but under-utilized, as there is a hesitancy by the consulting engineering community to use the program. The Engineers should receive some financial incentives for including I/A processes in their projects. At present, they only represent a risk to the engineer's reputation without an incentive to take the risk, even though the 100 percent EPA rebate program does protect the grantee. Presently, with no reward to the Engineer for success, he is only assured of headaches for failures. Funding and use of field testing in Step I of I/A technologies as authorized in PL 97-117 needs further emphasis by the EPA.

VIII. Pretreatment/Toxics

Although the Act was originally written around the assumption that all of a list of specified toxic pollutants were to be pretreated at their source to avoid harm to the POTW treatment, Congress later became convinced that there were some cases where these pollutants could be at least partially removed in a POTW without harm to the overall treatment process. EPA responded to this by including in their Pretreatment Standards Regulations, a detailed procedure by which POTW's could qualify to grant removal credits, and thereby reduce the pretreatment requirements for the appropriate point source dischargers.

There is much debate over the issue of reduced pretreatment, stimulated by a combination of administrative shortcomings and technical knowledge gaps. EPA is forming a task force, with outside involvement, to study the entire range of pretreatment implementation issues, with the intent to clarify regulatory problems within the scope of existing legislation.

At the same time, there is an effort being made to further amend the Act, addressing this issue. Proponents of this new legislation prefer outlining different qualifications by which to permit a local POTW operating authority to establish an alternative local pretreatment program, and thereby "opt out" of compliance with the categorical pretreatment regulations in specific cases. New legislative direction would probably result in another 3 to 5 year round of debate, rulemaking and legal challenges to whatever implementation system is devised by EPA. This would tend to halt movement toward detailed design and construction of facilities, perhaps by both point source dischargers and the POTW's.

There is momentum and general agreement to do something about improving implementation of alternative pretreatment programs, since it is reasonable to utilize POTW capabilities

to the fullest possible extent, and to avoid unnecessary duplication of treatment. There should be flexibility in the pretreatment requirements for point sources discharging into POTW's. However, there is no need for additional legislation to improve the implementation of removal credits and/or alternative local pretreatment programs. EPA has sufficient existing legal authority to devise an effective administrative and regulatory framework for such programs using the newly formed Task Force and should be encouraged to see that this comes to pass.

IX. Second Grants

The "catch-up" philosophy of PL 92-500 as enacted in 1972 deserves continued support. Federal funding under PL 92-500 should be a one-time grant given to assist the grantee to "catch-up" to an acceptable level of treatment. However, any grantee who has received funding under federally funded clean water programs prior to PL 92-500 should not be ineligible for PL 92-500 grants.

X. Plant Abandonment

The current EPA policy requires the EPA to recoup the fair market value of abandoned facilities constructed with federal funds. This must be approached on a case-by-case review basis, taking into account, among other things, the conditions of the NPDES permit which required the original construction. If this permit has since changed, a new set of cost-effective analyses should be required and the grantee not be penalized for abandoning facilities, if the most cost-effective alternative includes such an abandonment.

XI. Combined Sewer Overflows

The goals of the Clean Water Act cannot be met without addressing and regulating CSO as a source of pollution. It is a major contributor. Federal funding should not exclude CSO work. Past allocations of funds to CSO projects have been heavily in favor of capital intensive sewer separation and storm water storage projects, and have tended to ignore separate CSO treatment facilities even when they are cost-effective and capable of meeting water quality objectives of the Clean Water Act. Prioritization for future CSO work should be determined by the same method used for POTW work (water quality impacts) and one integrated priority list should be determined for both.

XII. Progress Payments

The mandating of progress payments for specifically manufactured undelivered major equipment items is necessary for the economic viability of suppliers, leveling their cash flow

outlays. It also tends to increase competition from smaller firms that have minimal capitalization. Also, the posting of bonds by manufacturers, as an alternate to withholding of cash retainage by grantees throughout long post-construction periods, should become a standard practice in the industry.

XIII. Non-Point Sources

The goals of the Clean Water Act cannot be met without addressing and regulating non-point source pollution. This source of water pollution can cause serious degradation of surface water. The control of these sources should remain with the EPA, not with a new national commission. Federal funds should be available to the states/local agencies to encourage the development of a well integrated, non-point management plan.

APPENDIX B

REPORT FROM
THE MANAGEMENT ADVISORY GROUP (MAG):

FUTURE FUNDING OF MUNICIPAL
WATER POLLUTION CONTROL NEEDS

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REPORT TO EPA

FUTURE FUNDING OF MUNICIPAL
WATER POLLUTION CONTROL NEEDS

PREPARED BY THE

MANAGEMENT ADVISORY GROUP TO THE
CONSTRUCTION GRANTS PROGRAM (MAG)

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WALT GARRISON
Vice President

May 14, 1984

Mr. Jack E. Ravan
Assistant Administrator for Water
Environmental Protection Agency
Washington, DC 20460

Dear Mr. Ravan:

The Management Advisory Group (MAG) serves in an advisory capacity to the EPA on matters relating to the Clean Water Grant Program. MAG has been involved in providing guidance to your staff over the past year regarding funding of the Clean Water Grant Program. These efforts have been consolidated and significantly enlarged through the work of a subcommittee of MAG chaired by Mr. Joseph S. Lagnese. This letter will serve as a letter of transmittal for the final report of this subcommittee.

The report, titled "Future Funding of Municipal Water Pollution Control Needs," represents a consensus of the views of all MAG members and has been prepared after taking advantage of interviews with a very diverse group of professional societies and public interest groups. The position of these people was presented to MAG in a series of meetings during which the reasons for recommendations were thoroughly explored. MAG then made an independent evaluation which is now summarized in the attached report.

An executive summary of findings and recommendations is included as a preface to the full report.

The MAG Committee thanks you for this opportunity to present their views for your future guidance.

Yours truly,

Walt Garrison

Walt Garrison
Chairman

/rg

Enc.

cc: Victoria Price

EXECUTIVE SUMMARY

MAG REPORT: FUTURE FUNDING OF MUNICIPAL WATER POLLUTION CONTROL NEEDS

The Management Advisory Group (MAG) has been an official advisory group to EPA's municipal wastewater treatment construction grant program for 11 years. The 16-member MAG combines a diversity of professional backgrounds and includes wastewater treatment engineering and management experts, equipment manufacturers, financial specialists, local government officals, and environmental and public representatives. MAG members are appointed by the EPA Administrator. Members are drawn from different parts of the country, and serve without compensation for two year terms.

MAG's study on the future funding of municipal water pollution control needs was initiated in the Fall, 1983 at the request of EPA. As Administrator William Ruckelshaus stated, it was important to "tap the collective wisdom of MAG" and obtain the group's best advice on the financing of wastewater treatment for the country. A special 11-member MAG subgroup, the Publicly Owned Treatment Works (POTWs) Funding Task Force, carried out much of the work. MAG offers its thanks to Mr. Joseph Lagnese, Chairman of the POTW Funding Task Force, and principal author of this report. The views expressed in this report represent a consensus of MAG members, and are attributable to them.

The MAG report is intended to provide guidance to EPA in its current study on the FY 1986 Reauthorization of Title II (the municipal wastewater treatment construction grant program) of the Clean Water Act.* In the course of its 8-month deliberations, MAG heard from a variety of major public and private sector organizations representing diverse interests, including the Water Pollution Control Federation (WPCF), Association of Metropolitan Sewerage Agencies (AMSA), American Consulting Engineers Council (ACEC), National Society of Professional Engineers (NSPE), Water and Wastewater Equipment Manufacturers Association (WWEMA), National Governors Association (NGA), National Wildlife Federation (NWF), Maryland League of Women Voters (MLWV), Izaak Walton League (IWL), National League of Cities (NLC), and Association of State and Interstate Water Pollution Control Administrators (ASIWPCA). MAG also had the benefit of discussions with persons experienced in public financing and Federal tax regulations, and drew upon past MAG and EPA studies. EPA staff assisted in answering discrete technical and financial questions posed by MAG.

In preparing its recommendations, MAG relied on the EPA 1982 Needs Survey and the requirements outlined by Congress in the 1981 Amendments to the Clean Water Act. However, in outlining funding options and recommendations, MAG considered the total water quality needs and financial capabilities of local communities. Options examined by MAG ranged from a substantially decreased to increased Federal presence. These options included local programs and private financing arrangements, and State and Federal alternatives. Below are summarized MAG's major findings and consensus recommendations.

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*EPA's study, entitled "Federal Role in Municipal Wastewater Treatment," is outlined in the Federal Register, 49 FR 6009, February 16, 1984.

Summary of MAG Findings

1. Although there has been measured improvement in the condition of our waterways, water pollution control efforts by municipalities are incomplete and significant abatement needs remain.

2. The goals of the national program to restore and maintain the integrity of the nation's waterways must remain consistent with the intent of the 1972 Act.

3. Federal regulatory and technological strategies should be improved to fit the prevailing political climate and to employ resources in a more cost-effective manner. There is a critical need for more applied and demonstration research on technology.

4. Innovative Federal enforcement programs are needed to ensure adequate operation and maintenance of completed systems and to provide localities with the impetus to establish innovative methods to finance construction. The National Municipal Policy is a step in the right direction, but fails to recognize the need for more effective means such as connection bans and cross-compliance sanctions.

5. The 1988 deadline for municipal water pollution compliance should be retained. Individual "consent decree" agreements should establish the deadlines for municipalities not in compliance.

6. Local operating agencies and users must be totally self-sufficient in terms of operating and maintaining their POTWs and for capital improvements to satisfy growth.

7. The Federal government must consider the full range of water pollution control needs facing communities, and the possibility of meeting these within a desired time frame. Since a large portion of these needs cannot be federally funded, some criteria of affordability and implementability will be needed to compare different ways of reducing the municipal burden to a feasible level.

8. A dual approach is required to assist municipalities in meeting water pollution control needs in a reasonable time frame.

   - Some type of Federal aid is needed to enable municipalities to meet current eligible needs.

   - Indirect Federal assistance that involves tax advantages and incentives will be required to attract private sector funding for noneligible costs.

9. States should be given discretionary authority to devise innovate funding mechanisms which accommodate differences between communities in terms of size, revenue requirements, water quality, and private investment potential.

10. The Federal program must establish consistent and reliable long-term goals and commitments so municipalities can be certain of what is required of them.

Summary of MAG Recommendations

1. In a transition period over the next 10 years, municipalities should have access to Federal grants to States of $35 billion.

2. During this transition period, States should be permitted to use Federal funds as grants, revolving loans, and/or interest subsidies within prevailing Federal program requirements for project priorities and planning review/approval.

   - For large-city projects already committed to a phased construction schedule and financing plans based on grant approach, conventional grant assistance might be most beneficial.

   - For States with modest current needs but extensive anticipated growth, the revolving loan approach might assure residual funds for the period following termination of the Federal grant program.

   - For States with large and immediate needs that require expedient project implementation, the interest subsidy approach might be most useful.

3. Implementation of the above-recommended funding program should be pursued in a manner which assures an orderly transition with minimum interference with the ongoing municipal construction program. A State should be committed to the direct grant approach until it has provided the means and methods to utilize the revolving loan and/or interest subsidy approach.

4. States should be given discretionary authority over eligibility and priority for Federal funding to assure optimum water pollution control in differing municipal water pollution conditions.

5. The existing tax incentives for private sector involvement in municipal water pollution control--such as investment tax credits and accelerated cost recovery--should remain available.

6. Industrial development bonds with their tax-free interest features should remain available for private sector financing of water pollution control projects.

ENVIRONMENTAL PROTECTION AGENCY'S
MANAGEMENT ADVISORY GROUP TO THE CONSTRUCTION GRANTS PROGRAM
EVALUATION AND RECOMMENDATIONS
POLLUTION CONTROL NEEDS

GENERAL

It is the intent of the Management Advisory Group to the Construction Grants Program (MAG) to develop guidance for the Environmental Protection Agency (EPA) in its development of recommendations to the Congress for the future funding of the remaining publicly owned treatment works (POTW) construction needs of the national water pollution control program.

To obtain the advice and counsel of those directly concerned with the implementation of the municipal water pollution control facility planning and construction program, major organizations that represent the interests of such individuals and institutions were invited to present their views to the Committee. The organizations that participated in this concensus effort include the Water Pollution Control Federation (WPCF), Association of Metropolitan Sewerage Agencies (AMSA), American Consulting Engineers Council (ACEC), National Society of Professional Engineers (NSPE), Water and Wastewater Equipment Manufacturers Association (WWEMA), National Governors Association (NGA), National Wildlife Federation (NWF), Maryland League of Women Voters (MLWV), Izaak Walton League (IWL), National League of Cities (NLC), and Association of State and Interstate Water Pollution Control Administrators (ASIWPCA).

We also had benefit of discussions with persons experienced in public financing of municipal sewerage projects and in the Federal tax regulations relevant to the use of private sector financing of these projects.

A special MAG task force was set up to perform the initial inquiries and evaluations. The task force also reviewed other recent MAG task force efforts in this area, as well as EPA staff-prepared fact sheets relating to the funding question. The MAG reports reviewed include "Self Financing of Wastewater Treatment," January 1983, and "Alternative Methods of Financing Wastewater Treatment," January 1982. Also reviewed were EPA's outline of its on-going evaluation of "POTW Self-Sufficiency/Compliance: Appropriate Federal Roles" and EPA's notice in the February 16, 1984 Federal Register entitled "Federal Role in Municipal Wastewater Treatment: Study."

In addition, the task force utilized the input of all the MAG members who are also representative of the many disiplines involved in the municipal waste pollution control program, as well as those concerned with the public impact of the program.

BACKGROUND

Since 1972, approximately $40.34 billion has been appropriated for construction of POTWs. Currently, $2.4 billion per year is authorized through fiscal year 1985. Based on the EPA 1982 Needs Survey and original (1972)

eligible funding categories, there remains a total backlog of $92.6 billion of construction to serve the 1982 needs (with no allowance for growth to serve future needs) as follows:

	Category	Billion Dollars
I	Secondary Treatment	20.1
IIA	Advanced Secondary Treatment	3.3
IIB	Advanced Treatment	0.5
IIIA	Infiltration/Inflow	2.6
IIIB	Replacement and/or Rehabilitation	4.7
IVA	New Collector Sewers	16.8
IVB	New Interceptor Sewers	8.9
V	Combined Sewer Overflows	35.7
	Total	92.6

Under the 1981 Amendments to the Clean Water Act, the eligible categories for Federal grants are generally limited to secondary treatment (I), advanced secondary treatment (IIA), advanced treatment (IIB), infiltration/inflow (IIIA), and new interceptor sewers (IVB). These account for $35.4 billion of the total. The Federal grant share as of October 1984 will be reduced from 75 percent to 55 percent, and capacity for growth will no longer be eligible for Federal funding. Based on these eligibilities, approximately $35.4 billion of backlog requires funding, and on the basis of a 55% Federal share, total Federal appropriations of at least $19.47 billion will be required. However, because of those phased/segmented projects which retain the prior 75% share through their completion and "set-aside" allowances for State discretionary use, the Federal potential exposure for construction grant funding will be somewhat greater than this minimum projection. At the present $2.4 billion per year funding rate and disregarding inflation, it will take approximately 8 years to fund the minimum projected needs of $19.47 billion.

EPA has also determined that by the year 2000, the needs of all categories will increase from $92.6 billion to $118.35 billion with the current eligible categories increasing from $35.4 billion to $57.3 billion. At 55% participation, the Federal share increases to a minimum of $31.5 billion. Again, at $2.4 billion per year, this would equate to about 13 years of funding to meet minimum needs, without respect to inflation, remaining phased/segmented projects, and the State "set-aside" allowances.

INFLUENCING FACTORS IN MAG DELIBERATIONS

In trying to evaluate all the considerations relating to the continued Federal participation of the municipal construction program, four aspects appear to have benefit of general agreement:

- Significant progress has been made in the improvement of the nation's waterways as a result of the accelerated national program since 1972.
- A major factor limiting the completion of program goals is the substantial level of municipal water pollution control needs that remain unresolved.
- Public support for completing the national program and achieving the original goals remains at a high level.
- The continued commitment of the Federal government to municipal water pollution control is required because of the interstate and international nature of water pollution.

There is also agreement that the unresolved municipal water pollution control needs stem from both the need for new facilities and the need to improve the performance of existing facilities. Continuing pollution appears to result from:

- Untreated sewage discharges.
- Treated sewage discharges which do not meet enhanced water quality criteria for receiving streams.
- Incomplete projects of large cities being implemented within phased segmented programs.
- Inadequate performance of existing treatment facilities due to insufficient capacity, excessive infiltration/inflow, excessive or incompatible industrial loading, improper technology application, and inadequate operation and maintenance.
- Unsatisfactory sludge/solid waste management practices.
- Inadequate control and/or treatment facilities for combined storm-sanitary overflows.

However, remedial measures, particularly those relating to continued Federal funding, provoke differing responses from the many interested and concerned parties. For the most part, all agree to some continued Federal funding but disagree on the extent and duration. Generally, three perspectives appear to influence the positions:

- The major impetus for reduced Federal funding assistance relates to concerns for the prevailing large Federal deficits and the suggested need to subject the water

pollution control program to the same financial scrutiny imposed on all Federal programs. Further argument on behalf of this position comes from those who suggest that the Federal grant program has not been effective and remains a deterrent to the type of local self-sufficiency considered essential for long-term achievement and compliance.

- The concern for fairness and equity strongly influences the position in favor of continued Federal funding. Those municipalities and regional agencies who have not yet received the Federal funding required to meet all the statutory requirements imposed upon them question the fairness of Federal policy that threatens to deprive them of equal treatment only because of their "position in line". They contend that such a policy exacerbates the problem that all local governments, particularly large cities, face in satisfying increasing responsibility for other burgeoning social and infrastructure needs resulting from reduced Federal participation. Fairness suggests to these proponents that all the unresolved needs of POTWs should be funded to the same extent as provided to those who preceded them with higher priorities. They also suggest that without Federal assistance for their POTW needs, competition for limited revenues and funds available to the municipalities will adversely impact their water pollution control efforts and significantly delay implementation.

- In between these two perspectives are compromising proposals that attempt to accommodate some of both concerns. These include:

  - Reduce effluent standards, both at the secondary treatment level and at the higher levels dictated by water quality considerations.

  - Reduce eligibility and extent of Federal participation.

  - Extend time frame for compliance.

  - Provide other Federal funding approaches.

  - Develop new non-Federal funding and/or financing approaches.

The major interest at this time appears to be directed toward the alternative Federal and non-Federal funding/financing possibilities. The most notable considerations, in these areas include the following:

Local Options

- Use of private sector to take advantage of accelerated depreciation/investment tax credits and industrial development bonds, referred to hereafter as "private financing."

- Use of depreciation allowance in user charge determination to provide funds for future capital improvements and replacements.

- Use of tax exempt municipal bonds.

- Use of special revenue sources such as sewer availability fees and connection charges, and sale of treatment byproducts (methane and soil conditioners) and reuse water.

- Use of ad valorem taxes to finance capital needs to provide subsidy to the POTW user in the form of Federal tax deduction.

State Options

- State grant program funded by State revenues for capital improvements.

- State loan program funded by State bond issues and/or Federal seed money.

- State subsidy program for annual O&M costs funded by State revenues.

- State loan guarantees to increase local credit ratings.

- State operation of POTWs, with uniform user costs across the State.

Federal Options

- Categorical grants, altered from current program in terms of eligibility, participation, and term.

- Block grants to States for Federally subsidized needs, with States having full responsiblity for the funding delineation. In expanded form (megablock grants), this represents the "New Federalism" proposal.

- Federal loan program, with interest subsidy costs borne by Federal treasury from general revenues.

- Federal loan guarantee program, with loans from private sector guaranteed by Federal Government and default costs being Federal burden.

- Federal trust fund, with Federal costs subsidized by specific revenue sources.

- Federal tax subsidy which is, in fact, the Federal burden and/or contribution resulting from the Federal tax incentives involved in the local option types of private financing.

The extent of opinion divergence on the Federal grant approach is found in the positions taken by the organizations who met with MAG on this issue.

WPCF favors a specific phaseout of the Federal funding program, with the national program relying hereafter on other alternative financing methods, extension of program deadlines, and greater reliance on water quality considerations for setting treatment standards. The Federation suggests Federal funding phaseout by 1992, reducing annual total grants from $2.4 billion currently to $0.4 billion in 1992, and limiting Federal participation to 55%.

ACEC favors the stabilization of the Federal grant program, with at least another 5 years authorization at the current $2.4 billion annual level. NSPE proposes a combination of Federal loan guarantees and Federal interest subsidies, with Federal grants limited to the remaining phased segmented projects.

AMSA, however, is quite emphatic in its position that Federal funding should be continued, and at much greater than present levels. They maintain that the funding should be adequate to permit the large cities to complete the originally mandated programs for which they have made large commitments in planning and financing. A 10-year period of Federal grant funding at a level of $2.4 billion per year with 75% participation is indicated to be required to meet just the needs of their constituent cities and regional agencies to satisfy compliance requirements. AMSA further suggests that a total Federal funding level of $5 billion per year would provide $2.6 billion per year for all other communities of the nation. As to grant eligibility, AMSA favors the exclusion of growth expansion but the inclusion of combined sewer overflow.

WWEMA also favors increased funding levels and the retention of 75% Federal participation.

Most of the other organizations appear to favor continued Federal grant funding until the municipal needs are satisfied, but at a 55 percent participation level.

The National League of Cities, however, suggests that if Federal funding is not continued, the timetables for meeting the requirements of the Act should be postponed or delayed. The National Governors Association proposes that the States be permitted to adapt Federal grants to a State loan program and that inflation be recognized in the continued Federal grant program.

Although both organizations favor continued Federal funding of POTWs, the Izaak Walton League and the National Wildlife Federation prefer that long-term funding issues be postponed until other important changes in the Clean Water Act are effected, hopefully not later than FY 1985.

SUMMARY OF FINDINGS

As a result of our deliberations with representatives of organizations having diverse interests in water pollution control, with EPA officials, with financial specialists, and with each other, MAG has come to a better understanding of the difficult and complex aspects of the important national issues on future funding of the municipal water pollution control program. From this we have been able to develop a general consensus on the delineation of the major factors involved in developing a national policy.

First, opinion is unanimous that although there has been measured improvement in the condition of our waterways, the water pollution control effort by municipalities is incomplete and significant abatement needs remain.

Second, there is agreement that the goals of the national program to restore and maintain the physical, biological, and chemical integrity of the nation's waterways should not be compromised but should remain consistent with the intent of the 1972 Act and its amendments.

Third, there is strong feeling within MAG, however, that many of the regulatory and technological strategies followed in the initial program should be altered to better fit the prevailing political climate and to benefit from previous experiences. The strategies must now take into account that the competition for financial assistance at all levels of government is more intense, that the public support is more rational, and that public policy is more directed to decentralization of governmental authority. These strategies must also recognize the experiences that have dramatically revealed the difference between a technology's capability and its achievability and the critical relationship of this difference to the commitment of resources for the development and operation of the technology. More than ever, applied and demonstration research by universities, manufacturers, and municipal operating agencies is required and is deserving of the highest priority for Federal assistance and encouragement.

Fourth, one required new strategy directly related to funding initiatives is municipal enforcement. We all agree that the Federal government must improve its enforcement programs and efforts. This essential element of the national program will, in our judgment, not only encourage the local initiative to operate and maintain the completed systems at a proper level of performance and physical integrity, but it will also provide the impetus to create the type of imagination and innovation necessary for the municipalities to complete the needed facilities.

The National Municipal Policy recently released by EPA is a beginning to this needed effort, at least with respect to the rescheduling of noncomplying municipalities. However, it still fails to deal with the need for more effective elements of enforcement, such as connection bans and cross compliance sanctions. This aspect of the enforcement program has plagued the national program from its inception and fails to encourage the type of self-reliance necessary for the desired Federal disengagement from construction funding.

Fifth, it is also obvious to MAG that time is a critical factor and an important variable in the consideration of funding for municipal water pollution control. We do not believe that a useful or meaningful analysis of funding needs can be achieved without the imposition of time constraints. Accordingly, we strongly urge that time be an element of analysis and comparison for all financial assistance options and financial capability evaluations. As both a matter of enforcement and time consideration, the 1988 deadline for municipal compliance is now deserving of special concern. It is quite obvious that the deadline cannot and will not be met, and there appears to be a range of strategies which can be considered.

One approach is to extend the deadline again and pace it with considerations of feasibility and affordability. However, the sense of national commitment would be lost by such a strategy. While the original deadlines focused attention on the need for national commitment, continued extensions do not. Thus, another approach is to allow the 1988 deadline to stand as a milepost and reminder. For those municipalities who have satisfied their commitment, it can serve as a measure of satisfaction and accomplishment, with possibly special national recognition. For those municipalities who will not have completed their commitment, the deadline date will remain as a reference from which eventual accomplishment can be measured in terms of "how soon after" compliance was achieved. Individual "consent decree" agreements could then be the vehicle by which EPA and the States would establish deadlines for each municipality not in compliance by 1988, as appears to be the intent of the recent National Municipal Policy. MAG believes there is merit in the latter approach, particularly if a program of incentives could be conceived to reward expeditious compliance. Realistically, however, the MAG suspects that it will require until the "end of the century" to accomplish the original objectives of the Clean Water Act, and it is probably in terms of improvement on this time frame that all funding alternatives should be evaluated.

Sixth, there is full concurrence within MAG that improved operation and maintenance of POTWs must remain the full responsibility of the local operating agency. These agencies, and the users they serve, must become totally self-sufficient in terms of maintaining and preserving their POTWs. Further, we are in agreement that they must also be responsible for the capital improvements required to satisfy growth needs. Neither O&M nor growth within the system should ever be a component of Federal assistance or subsidy. However, as the total burden on municipalities for satisfying water pollution control needs are evaluated, the contribution of these local costs to this total burden should be fully taken into account.

Seventh, we believe strongly that the achievement of the water pollution control goals requires that all the needs be satisfied. Therefore, the Federal government must be equally concerned with all needs, particularly as relates to their affordability and implementability within the desired time frame of achievement. Based on the 1982 Needs Survey, this concern represents a cost burden, uncorrected for inflation, of over $118 billion through the year 2000. Based on current eligibility and Federal participation, Federal assistance will be limited to approximately $20 billion or about 17% of the total needs, leaving nearly $100 billion to be funded by the municipalities. We do not have a basis at this time to judge whether this magnitude of unaided needs can be achieved within the funding options now available to municipalities. It is, however, our intuition that they cannot and that a

large of portion the total municipal needs will be unaffordable and unfeasible. To permit a rational policy development in this area, some criteria of affordability and implementability will be needed as a basis for determining and comparing the different ways and means of reducing the municipal burden to a feasible level. The price of water pollution control service is likely to rise and probably should. Nonetheless, the greatest challenge of the national program is to keep clean water affordable.

Eighth, we believe the Federal concern that the municipalities satisfy all water pollution control needs in any reasonable timeframe will require a dual approach. One effort will have to continue to deal with the assistance needed to permit municipalities to satisfy the current eligible needs; this is presently being satisfied by the Federal grant program. The second effort will need to find ways to assist in the satisfaction of the far greater costs relating to the presently noneligible needs as well as growth capacity and inflation. If municipal pollution abatement is to be achieved by the year 2000, the two efforts will have to be pursued concurrently.

It is our intuition that some type of direct Federal funding in the form of grants and/or loans will still be required to meet current eligible needs. To keep the needs within feasible and affordable levels, it is our further intuition that indirect Federal assistance involving tax advantages and incentives will be required to attract a large amount of private sector funding. This intuition is further premised on the idea that with proper tax incentives the private sector will provide an efficient and economic way to satisfy a portion of the costs of the remaining needs. It is, however, discouraging that at the present time the Congress, in its zeal to control past abuses of these tax provisions, is considering proposals to deny tax incentives to private investment in municipal water pollution control projects. Unless these efforts are redirected, an important alternative to the Federal grant approach for completing the municipal water pollution control program in our nation will be lost. The avoidance of this possiblity should be a very high priority for EPA and the Administration.

Ninth, MAG recognizes that the municipal need for assistance in completing water pollution control programs will vary extensively, depending upon size, prevailing revenue requirements, water quality needs, private investment potential and other similar factors. There is concern in MAG that some effort must be made to accommodate the gross disparity in municipalities' financial and management capability, and, unless addressed, the opportunity for private sector assistance will be impaired. Insofar as direct Federal assistance programs of transition are involved, MAG favors the concept of discretionary assistance opportunity, so long as the discretion authority rests with the States.

Tenth, MAG strongly supports the need to establish consistency in the Federal program, in terms of reliable, uniform, and long-term goals and commitments upon which municipalities can then determine without uncertainty what is expected of them.

RECOMMENDATIONS

We have attempted in the previous section to provide insight that might help guide EPA in establishing the most productive role for the Federal government in assuring that adequate funding will be available to complete the municipal water pollution control program. In most cases, the direction which we have given requires further research and evaluation far beyond the scope of our time and resources but which hopefully EPA will be able to satisfy in its financial capability evaluation now underway.

We do feel that it is appropriate, however, to make firm recommendations on some aspects of both the direct Federal assistance and the indirect Federal assistance programs, which we believe represent the most critical and pressing matters now requiring the attention of EPA and the Administration.

For the transitional grant program effort which we believe is essential, we recommend that:

- Federal grants of $35 billion (in constant dollars) should be made available to States for municipal POTW needs during a transitional period over the next 10 years, with the intent that thereafter, responsibility for the program will remain with municipalities and the States.

- During the transitional period, the States should be permitted to use the Federal funds as grants, loans, and/or interest subsidy, all within the prevailing Federal program requirements for project priorities and planning review/approval. The conventional grant assistance approach might be most beneficial for large city projects already committed to a phased construction schedule and a financing plan based on the grant approach. For States with modest current needs but extensive growth potential, the revolving loan approach could assure residual funds for the periods following the termination of the Federal grant program. The interest subsidy approach might be useful for those States with a large and immediate need requiring expeditious project implementation.

- Implementation of the above-recommended funding program should be pursued in a manner which ensures minimum interference with the ongoing municipal construction program. A State should be committed to the direct grant approach until it has provided the means and methods to make a transition to or utilize the revolving loan and/or interest subsidy approach.

- The eligibility and priority for Federal funding should be flexible, with the States being given sufficient discretionary authority to assure optimum control of the differing municipal water pollution conditions throughout the nation.

For the indirect Federal assistance and incentives needed to encourage private sector involvement in municipal water pollution control unaided by the transitional Federal grant program, we recommend that:

- The existing tax incentives, such as investment tax credits and accelerated cost recovery system, for private investment in water pollution control facilities remain available.

- Industrial development bonds, with their attractive tax-free interest features, remain available for private sector financing of water pollution control projects.

It is strongly recommended that the administration make known to the Congress the importance of these provisions to the water pollution control needs of the nation and the potential they provide to increase private sector participation in the program and to decrease direct Federal funding.

MANAGEMENT ADVISORY GROUP TO THE CONSTRUCTION GRANTS PROGRAM

*Mr. Leon C. Asadoorian
President-Treasurer
Methuen Construction Company

*Mr. J. Edward Brown
State Water Coordinator
Iowa Dept. of Water, Air & Waste Management

*Mr. John Foster, President
Malcolm Pirnie, Inc.

Honorable Corinne Freeman
Mayor of St. Petersburg

***Mr. Walter E. Garrison
Chief Engineer and General Manager
County Sanitation Districts of Los Angeles

*Ms. Karen Gifford, Vice President
Merrill Lynch

Mr. Albert F. Gutierrez, President
Gutierrez, Smouse, Wilmut & Associates, Inc.

Ms. Terry Hoffman, Commissioner
Minnesota Public Utilities Commission

Honorable Harry Kinney
Mayor of Albuquerque

**Mr. Joseph F. Lagnese, Jr.
Environmental Engineering Consultant

*Mr. J. Leonard Ledbetter, Director
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Georgia Dept. of Natural Resources

*Mr. Kenneth Miller, Vice President
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*Mr. Larry J. Silverman
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American Clean Water Assn.

*Mr. Gerald H. Teletzke, President
Zimpro Incorporated

*Mr. F. Thomas Westcott, President
Westcott Construction Company

Mr. Gordon E. Wood
Vice President and Director
Olin Corporation
Federal Government Relations

*Member of MAG Task Force on Future Funding of POTWs.

**Chairman of MAG Task Force on Future Funding of POTWs.

***Chairman of MAG; Member of MAG Task Force on Future Funding of POTWs; Now Vice President of James M. Montgomery, Consulting Engineers.

APPENDIX C

SUMMARIES

MEETINGS OF THE TASK FORCE ON THE FUTURE FUNDING OF MUNICIPAL WASTEWATER TREATMENT

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SUMMARY

MEETING OF THE TASK FORCE
ON THE FUTURE FUNDING OF MUNICIPAL WASTEWATER TREATMENT

March 15, 1984
9:00 a.m. - 11:30 a.m.

OPENING REMARKS

Al Alm, Deputy Administrator

- Background: The construction grants program started out small, and was geared to help small communities, but has grown to include everybody.

  The premise that we could satisfy a snapshot of needs (call it "backlog"), and then take care of that has proven faulty. The backlog will continue on.

- Asked Jack Ravan to initiate this study, within the context of:

  - long-term self-sufficiency, and
  - long-term compliance.

  [Note: The National Municipal Policy is starting the process of "decoupling" grants and compliance. This study will continue that.]

- Assumptions: Level amount of funding at $2.4 billion

- Options:

  - Federal: Grants, Loans, Credit Support, a mix
  - State
  - Local
  - Private Sector

- Study is an opportunity to do "homework" on the program, and pare down the program to re-shape towards fulfilling environmental objectives, and put the whole system on a self-sufficient basis.

Jack Ravan, Assistant Administrator for Water

Some key points:

- The Amendments in 1981 were a big shift, and will take effect in October of this year. EPA shouldn't "roll the world over" every two-to-three years.

- States and cities are sensitive about this study. We're not in the business of putting the construction grants program out of business. We need to close the gap between where we are and where we need to be.

- We've made a commitment to Congress to provide some answers; we have a schedule and we will need to hold to that schedule.

Henry Longest, Director of Water Program Operations

- Managing the Change: Continued Federal funding at a level necessary to meet all needs does not seem probable. As Al Alm mentioned, even with Federal grants, the reported needs remain "constant." The study will need to examine the transition to State/local funding of self-sufficient wastewater treatment facilities. The transition that we are examining in this study was started with the 1981 Amendments to the Clean Water Act (reduced appropriations, changes in eligibility and Federal share). We need to manage the change in a way that will allow transition from Federal to State/local funding.

- Boundaries on the Program: In the 1981 Amendments to the Clean Water Act, Congress established certain boundaries, e.g., eligibilities, Federal grant share, and level of funding, which have influenced the direction of the program changes toward State and local responsibility and funding.

- On-going activities: The Management Advisory Group to the Construction Grants Program has been working on this for several months, and is drafting a report that will be made available to the Task Force.

- State involvement: Several State ideas from efforts like the New Jersey infrastructure bank proposal need to be reviewed to help structure a transition program.

- FmHA: Grant and loan program experience of a Federal agency dealing with water and wastewater. Some communities may be unable to afford a new system even with an EPA grant; therefore, supplemental funding sources need to be evaluated.

- Treasury and Federal Financing Bank experience/insights are necessary to evaluate potential Federal loan guarantees.

- Congress has considered to some degree proposals such as infrastructure banks and programs that would allow Federal funds to go into State infrastructure banks.

Al Alm, Deputy Administrator

- Be careful with alternative financing arrangements. Was head of the Environmental Financing Authority (under 1976 legislation), and not one loan was made. The success rate of new financing schemes tends to be about that of new restaurants.

- Need to move up the December 3rd date for beginning Administrator's review.

OPEN DISCUSSION

Milt Russell, Assistant Administrator for Policy Planning and Evaluation

- This is an important study. We need a commitment to funding, but also need to get the "biggest bang for the buck."

- OPPE has developed a workplan to provide economic analysis of the extent to which new POTW funding options make a cost effective contribution to improved water quality. We are also prepared to compare the effectiveness of POTWs and other expenditures, e.g., CSOs. Finally, we would provide some assistance in the area of financial analysis. I would hope that this work will be useful to the Task Force; it would help if this work was incorporated into the main body of the study.

Robbi Savage, Executive Director, AWIWPCA

- ASIWPCA has held seminars on innovative financing, developed several publications, and has done work on a variety of State financing mechanisms.

- Fred Esmond (State of New York) will be working to provide a summary of State experiences for the study through the working group.

Jerry Yamada, Deputy General Counsel

- Have we gone to other Federal agencies to get their experience?; for example, HUD (CDBG), Commerce.

Victoria Price, Special Assistant to Mr. Ravan

- We will establish (but have not yet constituted) an Interagency Group (IAG), consisting of Treasury, USDA (FmHA), Commerce (EDA), and HUD.

- We need to be sensitive to the implication that FmHA should "take over" EPA's responsibilities in the area of smaller communities.

- Note: Non-EPA Federal funding for sewer and water is estimated at $1.2 billion/year, or half of the current EPA program.

Charles Jeter, Region IV Administrator

- Is the Task Force expected to produce a legislative package as a final product?

Jack Ravan, Assistant Administrator for Water

- Yes, we need to have Congressional contact, input, etc. This will be a non-event if there is no legislative product.

Charles Jeter, Region IV Administrator

- There are many (in Region IV area) who still believe that the [Federal] money will still be there [in the future] and that compliance should be tied to [availability of Federal] money.

Fran Phillips, Region VI Deputy Administrator

- Need to correct inequities. We're placing the burden on the growth areas to bail out the "Yankees."

Chuck Sutfin, Region V Water Management Division Director

- The National Municipal Policy is important. Momentum needs to be maintained. We have to make sure that the study does not create confusion among municipalities regarding our commitment to achieving municipal compliance by 1988 with or without Federal funding. In keeping with the study goal of "expeditious compliance," the study should evaluate how States have used available construction grants funds to achieve compliance. Non-compliance results from: (1) a lack of funding; (2) construction of inadequate facilities; and (3) choosing not to comply. The study should evaluate the benefits or cost savings that have been realized by the municipalities that have chosen not to comply and factor that information into the overall study. This item should be considered in determining the allocation of any future funding to States and municipalities. This would improve the incentive for States and municipalities to achieve compliance.

- It is appropriate that the study is focused on the ability of municipalities to pay for construction and operation of treatment works. Those municipalities, however, that have had an opportunity to participate in the construction grants program, but have chosen not to or have been slow to comply, should not benefit from additional Federal funding.

Morgan Kinghorn, Comptroller

- The OMB budget cycle starts September 15. If the study is to have impact, it needs to be factored into the OMB budget cycle [for FY 1986].

Robbi Savage, Executive Director, ASIWPCA

- ASIWPCA is unclear about just what this group is expected to do and what the initial boundaries for review include. Are eligibilities, reserve capacity, and federal share open for discussion?

Henry Longest, Director of Water Program Operations

- No; those issues were already addressed in the 1981 Amendments.

Dick Morgenstern, Director, Office of Policy Analysis

- The question is how that money is prioritized. OPA can play a useful role in this area by looking at what the impact of a facility was.

Charles Jeter, Region IV Administrator

- Is OPA going to look at meeting the law or just water quality standards?

Dick Morgenstern, Director, Office of Policy Analysis

- The question is how to divide up the pot in terms of improving water quality. We may find that funding CSO correction, for example, may have a greater impact than constructing a POTW. And we may discover that we need more money in other areas [e.g., NPS, CSO??].

- We will try to move up our (OPA) chapter to an earlier date [than September 30th].

Chuck Sutfin, Region V Water Management Division Director

- Can Regions get an outline and schedule of this OPA study?

Joel Smith, Staff, Office of Policy Analysis

- It is being prepared.

Charles Jeter, Region IV Administrator

- All of the Task Force would like to review that.

PRESENTATIONS

Brenda Davis, New Jersey Infrastructure Bank

- Described financial arrangements, use of Federal seed money to capitalize State bank, and political difficulties experienced in attempting to set-up State bank.

Glenn Bennett, Farmer's Home Administration

- Described features of types of programs (grants/loans, variable interest rates, ability-to-pay criteria) offered by FmHA.

Jim Ouseley, Federal Financing Bank

- Described off-budget financing entity for Federal loan and loan guarantee programs.

ATTENDANCE RECORD

TASK FORCE PARTICIPANTS

Al Alm, Deputy Administrator

Louise Jacobs, Associate Enforcement Counsel for Water Enforcement

Charles Jeter, Regional Administrator, Region IV

Morgan Kinghorn, Comptroller

Henry Longest, Director, Office of Water Program Operations

Fran Phillips, Deputy Regional Administrator, Region VI

Victoria Price, Special Assistant to Mr. Ravan

Jack Ravan, Chairman of Task Force

Milt Russell, Assistant Administrator for Policy, Planning and Evaluation

Richard Morgenstern, Director, Office of Policy Analysis

Robbi Savage, Executive Director, Association of State and Interstate Water Pollution Control Administrators (Representing Tex LaRosa, President ASIWPCA)

Richard Sanderson, Deputy Director, Office of External Affairs

Charles Sutfin, Water Management Division Director, Region V

Gerald Yamada, Deputy General Counsel

SPEAKERS

Glenn Bennett, Director, Water and Waste Disposal Division, Farmer's Home Administration (FmHA), U.S. Department of Agriculture

Brenda Davis, Special Assistant to Commissioner of Department of Environmental Protection, State of New Jersey

Jill Ouseley, Assistant Secretary of Federal Financing Bank, Department of the Treasury; Associate Director of Office of Government Finance and Market Analysis

STAFF

Steve Allbee, Acting Director, Office of Program Management and Evaluation

Allan Brown, Staff, General Counsel, Grants Division

Robert Greene, Staff, Office of Policy Analysis

Jim Horne, Staff, Office of the Comptroller

Kirk Lucius, Staff, Region IV

Charles Mooar, Staff, Office of Water Program Operations

Harvey Pippen, Director, Grants Administration Division

Joel Smith, Staff, Office of Policy Analysis

SUMMARY

MEETING OF THE MANAGEMENT ADVISORY GROUP

May 10, 1984
9:00 a.m. - 12:00 (noon)
Room 2409 Mall

Remarks on MAG Report - Walt Garrison

The MAG Task Force drew on people from a wide cross section of interests in preparation of the funding study. Two are representatives of construction interest, three are from state agencies, two are engineers, two represent cities, two represent manufacturing companies, one is from the finance community, one from the public at large, and one manager of a large sewage agency.

A variety of opinions were expressed by participants in preparation of the report regarding changing the scope of the wastewater treatment program and changing the compliance deadline for the program.

A variety of local, state, and federal funding options were examined. The Association of Metropolitan Sewerage Agencies (AMSA) expressed the most interest in expanding the federal role, including increased number of grants, increased eligibility, and increased funding.

Environmental groups (Izaak Walton, National Wildlife Federation) did not address the funding issue, but were concerned about regulatory problems for POTWs. Engineering organizations and state organizations expressed a variety of opinions regarding the degree of funding by federal, state, and local entities, eligibility, and program deadlines.

The views presented by major organizations concerned with water pollution control facility planning, as well as discussions with persons experienced in public financing of municipal sewerage projects and federal tax regulations, were the primary source materials for the funding report.

MAG Report - Joe Lagnese

Joe Lagnese, Chairman of the Task Force on POTW funding and an Engineering Consultant, did the bulk of the work in preparing the final report. Mr. Lagnese said he was very pleased with the quality of the input received. Notably, Karen Gifford of Merrill Lynch made a substantial contribution on the potential for private sector financing. Mr. Lagnese said that input was received from as many organizations as possible.

Organizations who participated in the consensus effort were:

- Water Pollution Control Federation
- Association of Metropolitan Sewerage Agencies

- American Consulting Engineers Council
- National Society of Professional Engineers
- Water and Wastewater Equipment Manufacturers Association
- National Governors Association
- National Wildlife Association
- Maryland League of Women Voters
- Izaak Walton League
- National League of Cities
- Association of State and Interstate Water Pollution Control Administrators

Mr. Lagnese said that EPA's 1982 Needs Survey provided the quantitative framework for the funding study. It was estimated in this study that approximately $100 billion will be needed to complete the construction projects necessary for compliance with the Clean Water Act. In 1981, the cost for eligible projects totaled approximately $35 billion.

Influencing Factors in MAG Deliberations

The following four factors, which appear to have benefit of general agreement among the respondents strongly influenced the direction of the MAG funding report:

1. Significant progress has been made in the improvement of the nation's waterways as a result of the accelerated national program since 1972.
2. A major factor limiting completion of program goals is the substantial level of municipal water pollution control needs which remain unresolved.
3. Public support for completing the national program and achieving the original goals remains at a high level.
4. The continued commitment of the federal government to municipal water pollution control is justified and required because of the interstate and international nature of water pollution.

Respondents tended to fall into 3 "mindset" categories in regard to POTW funding:

1. Reluctance to continue federal funding of POTWs since funding contributes to federal deficit problems. Other federal agencies

should be involved in the POTW funding program. Federally assisted programs have delayed construction and are a deterrent to self-sufficiency.

2. Federal funding is necessary for reasons of fairness, feasibility, and implementability. Reduction of program now is inequitable to municipalities and regional agencies who have yet to receive federal funding under the current priority system. Without federal assistance, many POTW programs will not proceed.

3. Federal contribution must continue, but state and local governments must pay a larger share.

Flip Chart Presentation (Joe Lagnese)

Summary of MAG Findings

1. Although there has been measured improvement in the condition of our waterways, water pollution control efforts by municipalities are incomplete and significant abatement needs remain.

2. The goals of the national program to restore and maintain the integrity of the nation's waterways must remain consistent with the intent of the 1972 Act.

3. Initial Federal regulatory and technological strategies should be improved to fit the prevailing political climate and to employ resources in a more cost-effective manner. There is a critical need for more applied and demonstration research on technology.

4. Innovative Federal enforcement programs are needed to ensure adequate operation and maintenance of completed systems and to provide localities with the impetus to establish innovative methods to finance construction. The National Municipal Policy is a step in the right direction, but fails to recognize the need for more effective means such as connection bans and cross-compliance sanctions.

5. The 1988 deadline for municipal water pollution compliance should be retained. Individual "consent decree" agreements should establish the deadlines for municipalities not in compliance.

6. Local operating agencies and users must be totally self-sufficient in terms of operating and maintaining their POTWs and for capital improvements to satisfy growth.

7. The Federal government must consider the full range of water pollution control needs facing communities, and the possibility of meeting these within a desired time frame. Since a large portion of these needs cannot be federally funded, some criteria of affordability and implementability will be needed to compare different ways of reducing the municipal burden to a feasible level.

8. A dual approach is required to permit municipalities to meet water pollution control needs in a reasonable time frame.

   - Some type of Federal aid is needed to enable municipalities to meet current eligible needs.

   - Indirect Federal assistance that involves tax advantages and incentives will be required to attract private sector funding for noneligible costs.

9. States should be given discretionary authority to devise innovate funding mechanisms which accommodate differences between communities in terms of size, revenue requirements, water quality, and private investment potential.

10. The Federal program must establish consistent and reliable long-term goals and commitments so municipalities can be certain of what is required of them.

Summary of MAG Recommendations

1. Over the next 10 years, municipalities should have access to direct Federal grants of $35 billion.

2. States should be permitted to use Federal funds as grants, revolving loans, and/or interest subsidies within prevailing Federal program requirements for project priority utilization and planning review/approval.

   - For large-city projects already committed to a phased construction schedule and financing plan based on grant approach, conventional grant assistance might be useful.

   - For States with modest current needs but extensive anticipated growth, the revolving loan approach might assure residual funds for the period following termination of the Federal grant program.

   - For States with large and immediate needs that require expedient project implementation, the interest subsidy approach might be useful.

3. Implementation of the above-recommended funding program should be pursued in a manner which assures minimum interference with the ongoing municipal construction program. A State should be committed to the direct grant approach until it has provided the means and methods to utilize the revolving loan and/or interest subsidy approach.

4. States should be given discretionary authority over eligibility and priority for Federal funding to assure optimum water pollution control in differing municipal water pollution conditions.

5. The existing tax incentives for private-sector involvement in municipal water pollution control--such as investment tax credits and accelerated cost recovery--should remain available.

6. Industrial development bonds with their tax-free interest features should remain available for private sector financing of water pollution control projects.

Open Discussion and Additional Comments On MAG Report

Mr. Ledbetter (State of Georgia) commented on the excellence of the funding report. He noted that it was a very good start and the best thing he had seen on the subject. He commended Walt Garrison, Joe Lagnese, Henry Longest, and Jack Ravan for the report.

Mr. Ledbetter pointed out the need to keep momentum going for the clean-up effort. He referred to the ASIWPCA report on America's Clean Water, which shows substantial progress in the waste treatment area, but indicates the need for municipalities to continue clean up efforts. Mr. Ledbetter maintains that a program with strong state involvement will get best results. He raised the issue of how programs will work based on incentives rather than mandates.

Mr. Ledbetter believes that Congressman Robert Roe's (NJ) bill doesn't provide the flexibility in financing which is supported and recommended in the MAG report. The Roe bill mandates a state loan process and avoids private financing, federal grants and loans. This bill could discourage states and municipalities from looking into other funding sources. Vermont does not want a state loan program. Mr. Ledbetter has changed his opinion and no longer sees the need for mandated programs.

In summary, Mr. Ledbetter said that states must work toward goals of the Clean Water Act, and accomplish them using the combination of financing which will work best.

John Foster (Malcolm Pirnie, Inc.) states that federal funding of $3.5 billion per year would allow efficient progress of the program, and also reduce budget problems. Ken Miller (CH2M-Hill, Inc.) noted that self-sufficiency in funding, and local responsibility for operation and maintenance, expansion and new growth have been goals of the program from the beginning.

Larry Silverman (ACWA) proposed that dissemination of MAG report findings to the House and the Senate should occur as soon as possible. Walt Garrison (Montgomery Engineers) said that the $35 billion backlog estimate was a minimum, assuming that 301(h) waivers would be issued. However, he pointed to

the findings of ASIWPCA's report, America's Clean Water that showed that water treatment has progressed very well in the past ten years, contrary to common opinion. A small percentage of projects have not fared well; but the overall program has been excellent.

Mr. Garrison believes that the federal government should be involved in upgrading wastewater treatment systems, but not in expansion to accommodate community growth. Municipalities should pay a fair share for new growth.

Mr. Lagnese discussed Appendix A of the MAG Report, titled "Illustrative Comparisons of Major Financing Assistance Options" (attached). He pointed out that affordability and implementability must be considered. For example, although the value of eligible projects initiated through interest subsidies would be higher than values for grant or revolving loan-funded programs, the debt service reduction would be far less.

Mr. Ledbetter again discussed the difficulty in pushing the transition to self-sufficiency. It will take a very long time for some states to develop a revolving loan program. States may oppose Congressional approval of a revolving loan program using federal funds if they are not ready to take advantage of it.

Ms. Price (EPA) asked Task Force members about the ability of states to implement POTW funding programs. Mr. Ledbetter responded that time is needed for development of programs. Some states are ready to proceed. In others, state revolving loan programs and infrastructure bank are not being considered by state legislatures. Some states will never develop funding programs, but will continue to use federal grant monies. Mr. Ledbetter again warned that the inflexibility of the Roe bill would create barriers to state funding.

Mr. Lagnese responded to Ms. Price's question by stating that this is the states' and municipalities "last fling;" they must act soon to obtain the available federal money. He added that it is important to give a clear time deadline for the overall federal program, such as 10 years.

Mr. LaRosa (ASIWPCA) pointed out that state aid programs to assist in POTW construction are in place in some areas, such as Vermont, which offers a 25% state grant. He raised the issue of how these programs should be coordinated with federal funding efforts. Mr. LaRosa also commented that the true needs for water cleanup must be considered at the local level, and we should attempt to measure affordability at the local level. He estimated that in Vermont, the measure of affordability is $350 per year per family, which is equivalent to 1-1/2% of mean family income. A bond issue in Vermont which would call for expenditures exceeding this level will fail.

Mr. Garrison stated that no measure of affordability has been developed, although it has been considered. Mr. LaRosa stated that system expansion to meet increased community growth and development should be supported.

Joe Lagnese said that MAG assumed that the existing priority system will stay in effect. Fran Phillips replied that we should be emphatic about this, because it provided stability, one of MAG's objectives. Remember that MAG had some conflicting criteria; for example, transition and flexibility are not consistent with stability.

Fran Phillips (Region VI) stated that the MAG was not giving proper recognition to population and economic trends in the nation. California, Florida and Texas are all big growth areas. In Texas, population is expected to increase while the economy declines. Without economic growth, citizens will balk at paying for necessary water treatment facilities. She argued that failure to address trends will lead to problems in 10 years. The private-sector cannot buck trends, and the program may be over in 10 years in the northeast. Mr. Ledbetter again maintained that new development should occur on a "pay as you go" basis. The Georgia Department of Natural Resources has imposed sewer bans and building moratoria in some areas of the state. These bans and moratoria will end only if cleanup occurs. Mr. Lagnese stated that Pittsburgh has unused capacity.

Mr. Ames (EPA) stated that the choice is either "pay as you go" or don't build. Mr. Miller pointed out the expense of "pay as you go" by stating that the cost of a new eight inch water tap is $800,000 and a household in Denver tap (1/4 inch) costs $4,000.

Mr. Lagnese stated that the private water utility industry has a fairly clear criteria for construction and financing of waste treatment plants.

Mr. Silverman said that private construction firms have shown an interest in putting forth money for expanding waste treatment. In Limerick, Pennsylvania, construction companies have paid in advance for sewer hookups. Home builders in Limerick have paid a $1.5 million in advance for sewer hookups.

Fran Phillips stated that Houston has "pay as you go", but questions whether it has led to better water quality. There have been no increases in regionalized treatment facilities, and enforcement is not good.

Mr. Silverman said that under contractual agreement with the private industry operating a treatment facility, municipalities can insist on high treatment standards.

Mr. Garrison stated that small wastewater treatment facilities cost more per family unit by a factor of two or three and added that this was a cost many people choose to bear when they live in rural areas. He added that overall, treatment is still a reasonable value (e.g., compared to cable TV). There are great economies of scale in O&M.

Chuck Sutfin (Region V) asked about what incentives have been considered for POTW development, and suggested the possibility of making adjustments to allocation based on compliance. We should keep the 1988 goal.

Mr. Garrison noted that a manager who spends the money for a good system ends up raising customer rates more than a manager who buys a lower quality system.

On the topic of enforcement, Mr. Lagnese stated that the use of 1988 as a benchmark for compliance with the Clean Water Act is a key to the enforcement program.

Fran Phillips stated that the 1988 deadline is a good enforcement policy, but that incentives are needed. Ms. Phillips suggested we adopt a non-compliance provision similar to the one in the Clean Air Act (CAA), whereby municipalities had to pay the federal government for noncompliance. Exceptions were made for municipalities which complied within a year, and for municipalities experiencing legal barriers to timely compliance. Mr. Ledbetter felt that these measures would be ineffective because industry was the primary target of noncompliance measures under the CAA, and such measures would not work with municipalities. Mr. Garrison said that we could charge for hook-ups and cut-offs. Fran Phillips said this was difficult.

Mr. Ledbetter felt that the federal government should have oversight, but that municipalities should be responsible for enforcement. Sewer bans and building moratoria are enforcement steps that a municipality can take.

Mr. DeHihns (EPA) asked Mr. Ledbetter about certain legal issues. He asked if all federal money would go for state grants, about the role of existing state programs, the legal authority of some states to establish grant programs, and the conditions that the federal government would place on state loan programs. In response, Mr. Ledbetter described conditions of the Georgia state loan program:

- If a community doesn't repay the loan, it loses access to all state monies (schools, police, etc.).
- Analysis of payback is performed before the loan is made.
- 55-57% of the funds are made available as a no interest loan.

Mr. Ledbetter maintained that strong federal oversight will decrease red tape. He recommended that the federal government force adherence to the priority system without adhering to specifics. Mr. Lagnese concurred on federal overview for a loan and grant program.

Mr. Ames noted that in New Jersey the broad scope of the infrastructure bank resulted in funding problems. A loan program which is limited in scope would be more effective.

Mr. Silverman said that grant monies will be available to all states, but that not all states will be ready for a loan program.

Mr. Smith said that program needs will not be met in 10 years. He also stated that priority within categories should be established.

Mr. Garrison stated that basing a priority system on value models is bad because these models change, and that a water quality priority basis should be maintained.

Mr. Lagnese pointed out a potential conflict between funding eligibility or project implementability, and degree of water quality control.

Mr. DeHihns noted that federal objectives in meeting needs is not clear (i.e., the amount of storage necessary, CSO control, the by-pass problem in Region 5, and overflow control). Mr. Sutfin said that CSO needs to be supported somehow.

Mr. Silverman stated that CSO is one of the major failures of EPA. It is excessively expensive (Rochester and Chicago systems are examples). Model projects should be developed at reasonable costs. There are, however, opportunities for states to fund CSO (through "set asides") at present.

Mr. Garrison stated that the states already have discretion to spend up to 20% of funds for severe water quality problems. CSO problems can't be solved with 35 billion dollars. In Washington, D.C., a CSO is proposed which will cost 180 million dollars.

John Foster said that federal involvement will go beyond 10 years. Mr. Lagnese thinks that federal involvement can be time-framed unless Congressional actions prevent it. Mr. Foster said that state governments have been stalling in some areas.

Mr. Hopkins said that if the programs are excessively delayed, we won't have a "prevention" program but a more complex "cure" program to contend with.

Mr. Silverman recommended that we watch the development of the new non-point source program being implemented at the state level.

Mr. Hopkins remarked that changes in growth patterns confound the ability to control waste. While some systems are underutilized, other systems are overtaxed. He also added that there is no enforcement mechanism which is effective, and that local governments vary in the desire for compliance.

Jim Horne (EPA) asked about the possibility for getting second grants. Mr. Lagnese stated that there are not sufficient funds for second grants.

SUMMARY OF PUBLIC RESPONSES TO FEDERAL REGISTER
STUDY NOTICE - Charles Hooar

Mr. Hooar indicated that there were twenty-five respondents to the call for papers in a February Federal Register. Comments should be considered in a broad context, in terms of: the reduced current level of funding, the narrowing of eligibility, the reduction of funding in 1981, and the 1988 program deadline.

There were a wide range of interests represented by the respondents. They included:

- One environmental organization in New Hampshire which assisted the state in its wastewater treatment program.
- Five cities, as well as AMSA.
- Representatives of small communities, some with depressed local economies.

- Consulting engineers.
- One accounting firm.
- Equipment manufacturers.
- The Farmer's Home Administration (FmHA).

The following points of consensus emerged from the papers:

- A continued Federal role is necessary.
- An orderly transition is necessary, emphasizing certainty and stability.
- Local communities are concerned with the limited amount of funds.
- States are concerned that they won't be able to comply with the 1981 Clean Water Amendments; they see a shortfall in what can be done.
- Respondents from the private sector stated that they will provide capital if the federal government stands behind the debt. They stated that compliance with the Clean Water Act will occur more quickly.
- Representatives from larger cities recommended an extension of the 1988 deadline. Few other respondents made this recommendation.
- Many small, financially strapped communities want a return to the 75% federal grant program.
- Respondents agreed that flexibility of states in developing funding programs was important. Vermont recommended a state funding program that would allow grants to cover up to 75% of construction costs in areas where financing is a problem.
- There was also a consensus for strong enforcement mechanisms.
- Respondents from large cities claimed that the absence of federal money will lead to non-compliance.
- Other respondents argued that waiting for grants had resulted in non-compliance.

- Respondents agreed that communities should pay for operation and maintenance and for future growth. Representatives from the financial community responded that local communities haven't kept rates at a level to build, operate and replace plants.

Mr. Miller stated that the 75% grant program which has been in effect for twelve years has led to excessive federal dependence. Transition will have to be orderly.

Concern was expressed about potential compliance problems created by development of new tecniques or standards in the future. Is a community "self-sufficient" if it meets the criteria which are set at a particular time?

Mr. Longest stated that there have been technical problems with physicial chemistry plants recommended previously by EPA. Correction of problems at these plants will not be specifically addressed under the funding program, but will be addressed on a case-by-case basis. The prevailing opinion in Congress appears to be that every municipality must have secondary treatment or higher in place to meet standards, and that no more funding will be available at that point.

- Many felt that CSOs need to be funded in many cities, and that the federal government shouldn't walk away from the problems that have arisen. They felt that CSOs should be eligible for funds.

- Many small communities stated that they needed more cost-effective techniques for waste treatment, and wanted technical input from EPA.

FUTURE WORK/ACTION ITEMS

Mr. Longest stated that the purpose of the July 19 meeting is to develop a set of criteria for EPA decisions on grants, loans, other and funding issues.

A preliminary list of criteria was handed out.

A May 31 public meeting will get the public up-to-date on Task Force accomplishments.

APPENDIX A

ILLUSTRATIVE COMPARISONS OF MAJOR FINANCING ASSISTANCE OPTIONS

CONDITIONS

Total Federal Commitment: 3.5 billion dollars/year for 10 years

Assistance Options

Grants: 55% of eligible costs

Revolving Loans: 20 year loan without interest, assuming no delinquencies or defaults and loaning of all repayments. Also assume average market lending rate is 10%.

Interest Subsidy: Subsidize all interest over 5%, based on 20 year project financing. Each year's non-utilized grant payment invested for future bond interest subsidy. Assume 10% rate for both long term financing and investment return.

PROJECTIONS

	Grants	Revolving Loans	Interest Subsidies
Based Only On Eligible Costs			
Value of Eligible Projects Initiated, In Billion Dollars	64	43	75
Debt Service Reduction on Eligible Spending Due to Fed. Assistance	55%	57%	32%
Funds Available After 10 years in Billion Dollars/Year	-	1.75	-
Based on Total Project Costs, Assumed to Represent 155% of Eligible Costs			
Value of Total Projects Initiated, In Billion Dollars	100	43	75
Value of Eligible Portions	64	28	49
Debt Service Reduction on Total Spending Due to Fed. Assistance	35%	57%	32%
Funds Available After 10 years in Billion Dollars/Year	-	1.75	-

EPA CONSTRUCTION GRANT STUDY TASK FORCE MEETING
MAG BRIEFING
Attendance Record

May 10, 1984

Walt Garrison	Montgomery Consulting Engineers, Inc.	MAG Chairman
Joseph Lagnese	Environmental Engineering Consultant	MAG POTW Task Force, Chairman
John Foster	Malcolm Pirnie, Inc.	MAG
Ken Miller	CH_2M-Hill, Inc.	MAG
J. Leonard Ledbetter	State of Georgia	MAG
Larry Silverman	American Clean Water Association	MAG
Henry Longest	DAA/OW	
Victoria Price	EPA/OW	
Jim Horne	EPA, Office of the Comptroller	
Harold Hopkins	EPA, Region IV	
Joel Smith	OPPE/OPA	
Lee DeHihns	EPA, Office of General Counsel	
Cora Beebe	EPA, Director of Policy (OSWER)	
Elyse DiBiagio-Wood	EPA (OCEM)	
Reginald LaRosa	Pres. ASIWPCA (State of Vermont)	
Fran Phillips	ORA, EPA Region VI	
Chuck Sutfin	WOO, EPA Region V	
Bob Greene	OPPE/OPA	
Brett Snyder	OPPE/OPA/Benefits Branch	
Pat Gaskins	OEA/OCL	
Jim Strock	OA/OPA (EPA)	
George Ames	OW/OWPO (EPA)	
Allan Brown	EPA, Office of General Counsel	
Charles Mooar	EPA/OW/OWPO	
Jim Anderson	The Synectics Group, Inc.	

SUMMARY

PUBLIC MEETING

May 31, 1984
10:00 a.m. - 12:00 p.m.
Room 2409 Mall

Introduction

George Ames provided the introduction for the meeting. The purpose of the meeting was to solicit comments and hold an open discussion on federal and non-federal roles in financing municipal wastewater treatment works. Oral and written comments were encouraged by Mr. Ames.

Officials making presentations were introduced: Myron Tiemens, Deputy Director of the Facilities Requirement Division would discuss the background of the study; Victoria Price, Special Assistant to the Assistant Administrator Jack Ravan would discuss the Management Advisory Group's findings and recommendations; and Charles Mooar, staff manager for the study will cover responses to a call for papers placed in the February 16, 1984 Federal Register.

Mr. Ames set the ground rules for the meeting. The meeting was intended to be very informal. Comments should not go beyond fifteen minutes. Speakers would try to answer any questions. Written comments could be left with the staff, however written comments submitted later would also be accepted. The meeting was scheduled to last two hours.

Study Overview

Myron Tiemens indicated that the number of members of the public attending the meeting was an encouraging sign. The EPA is particularly interested in public input regarding the criteria and the options which should be considered under the municipal wastewater funding program. Also, any sources of information or additional data which would assist in analyzing options would be particularly welcome.

The authority for the study is derived from the administrator's testimony to Congress in November 1983 in which he indicated that EPA would study the future federal role in municipal wastewater treatment works funding at the expiration of the authorization period in fiscal year 1985. The study will examine federal and non-federal funding of municipal wastewater treatment works and is expected to result in legislative proposals that will be presented to Congress February 1985.

Basic study goals are to achieve, on a long-term basis, local self-sufficiency in municipal wastewater treatment works in all stages: planning, design, construction, operation, and replacement. At the same time, EPA is seeking full compliance with the Clean Water Act, (PL 92-500). Mr. Tiemens said that

the study is an open one, that there is no "hidden agenda", and that all feasible alternatives are being considered. Input from all concerned individuals and interest group is being sought as indicated in the February 16, 1984 Federal Register notice. Several written responses have already been received, and the concerns and suggestions discussed in them will be considered and incorporated to various degrees in the report.

The proposed basic analytical procedure for the study is to first consider the amount of wastewater treatment work construction which can be completed without federal funding. Subsequently, the degree to which state and private sector sources and capabilities can contribute to identified construction needs will be considered. Finally, Federal funding and non-financial alternatives will be considered involving grants, various types of loans, infrastructure banks, or various combinations of such proposals to address remaining needs.

Proposed changes in the tax code, which would potentially impact the Construction Grants program, will not be considered, because such changes will be considered in Congress over time. However, the impacts that the existing tax code might have on alternatives will be addressed. EPA doesn't envision expansion of construction grant assistance beyond that already mandated by the 1981 amendments. The 1981 amendments already represent a consensus of opinion on federal share (55%) appropriations ($2.4 billion annually), and eligibility. These are seen as the upper levels of involvement in Federal construction grant assistance.

The principal criteria, as they currently stand, are:

- Maximum environmental benefits (leveraging)
- How much water quality enhancement can be provided through a given public and federal investment.
- Long-term compliance
- Long-term stability
- Provision for transition to a self-sustaining status. Sudden and abrupt policy changes can lead to difficulty.
- State and local flexibility
- Ease of Implementation
- Equity
- Federal subsidy cost

The study is being carried out by a high-level inter-office task force chaired by Jack Ravan, Assistant Administrator for Water. The Task Force includes ASIWPCA representation; this indicates the present federal/state partnership role in the Construction Grants program.

A number of groups are affiliated with the study, include MAG (the Management Advisory Group), interagency groups and liaison groups. The Office of Water Program Operations staff is performing most of the day to day work on the study, as is Victoria Price.

Mr. Tiemens provided a brief chronology for the development of the study. A call for papers was made in February. A draft report is expected to be completed in September or October, with the final report to be completed in November. It is expected that the report will result in legislative proposals in February 1985.

Mr. Tiemens stated that there are study documents already available for use by those interested in the Construction Grants program. The MAG report has various recommendations regarding the future direction of federal and state funding. The February 16, 1984 Federal Register notice provides information on the scope of the study and the issues to be considered. Mr. Tiemens closed by stressing the importance of public input and ideas particularly in regard to options and criteria for the program, and requested information and data which would be relevant to the program.

Recommendations from the Management Advisory Group

Victoria Price presented the MAG Report findings. The full report was given to each person attending the meeting. Ms. Price encouraged the people to read the executive summary of the report.

Ms. Price described the Management Advisory Group. There are 16 members of the group, which has been in existence for 11 years. The composition of the group is very diverse, including engineering consultants, state and local officials, environmentalists, equipment manufacturers, treatment plant operators and heads of sewerage districts. The fact that they reached a consensus is notable. EPA had no input into the report; it does not reflect EPA views, but the views of the MAG members. The MAG report is one of the first reports offering a complete summary with recommendations on the future of the program, looking in particular at financial alternatives.

Ms. Price indicated that this is the initial release of the report; the MAG Report will distributed nationally after the meeting. Ms. Price briefly discussed the findings of the MAG report. First, the MAG Task Force felt it important to address remaining significant municipal needs; they felt that the Construction Grants program had been beneficial, and that further support of wastewater treatment works is worth pursuing.

The MAG Task Force also wanted the program to remain consistent with the intent of the 1972 Clean Water Act, particularly the Title I goals of the Act.

It was also found that the new Construction Grants program should reflect experience gained in running the program to date. It is important to keep making adjustments to improve the quality of the program, particularly technical adjustments. One example of this is to encourage communities to seek equivalent wastewater treatment systems. The Task Force felt it very important to retain the 1988 compliance deadline milepost. The large municipalities saw this as particularly important.

There was a strong consensus among the Task Force that local entities should be responsible for operation and maintenance, growth, and reserve capacity of wastewater treatment works. In addition, some members of the MAG Task Force felt that municipalities were sharing an unfair burden of the Construction Grants program, due to limitations on eligibility and preferential treatment of small communities. The Task Force also agreed that in designing new financial alternatives and funding mechanisms, total needs and financial capabilities of local communities must be considered. It was felt by some Task Force members that affordability of projects differ by municipality, and that the disparities in ability to pay must be addressed.

In order to maintain the stability of the program, MAG members felt it important to establish reliable, uniform long-term program goals. It is important to clearly state milestones and goals, and have everyone work toward them.

The current compliance program was well-supported, but many felt that it should be improved by addition of further sanctions. These include cross-compliance sanctions and connection sanctions.

Five recommendations were made by the MAG Task Force:

- Federal grants should continue for ten years, at 3.5 billion dollars per year. These grants would be available to the states to provide for local treatment projects.

- States should make the choice of spending options. These include grants to local communities, revolving loan programs, and interest subsidies. An adequate state funding transition period would be provided for, but states would be required to provide money in the form of grants until other mechanisms could be established. It is believed that states may choose to use a combination of financing mechanisms to fund construction projects. Representatives of some larger communities felt that grants would be most useful to them, while loans and interest subsidies may benefit other communities.

- The Federal government should permit the states flexibility in setting eligibility and priority requirements.

- Tax incentives should be retained for private investment. Access to private funding is vital to achieve the required level of construction.

- In order to promote private investment in wastewater treatment facilities, it is important to retain the availability of Industrial Development Bonds.

To preserve existing private investment incentives, the MAG Task Force recommended that EPA lobby Congress against two tax bills currently being considered that would effectively "kill" these incentives. However, Ms. Price stated that, under the boundaries of the Construction Grants Program study, EPA would not involve itself in legislative proposals potentially affecting the program.

Ms. Price opened the floor for questions. In response to a question regarding the recommended funding level and the federal share, she explained that the $35 billion figure was based on eligible needs as expressed in the 1982 EPA Needs Survey. She felt that the Task Force, for convenience, had supported a 3.5 billion dollar allocation over ten years. In regard to the reduced federal share, Ms. Price stated that the 55% funding level will result in more construction.

In response to a question regarding the weight that the MAG Task Force report will receive in the final study, Ms. Price responded that the report will be one of many inputs used. However, due to the fact that the Management Advisory Group has had long experience with EPA and has put substantial work into creating the document, it will be given full consideration. Ms. Price felt that the MAG report had several good points, especially regarding the flexibility of the state role regarding funding mechanisms. Frederick Meites, representing the town of Laurel, Delaware, expressed concern that extensive control of the construction grants program at the local level would not be as effective as actions taken at the Federal level. Ms. Price responded that substantial federal guidelines would be put in place to promote effective local programs and establish eligibility.

Ms. Price was asked about the possibility of further refining the MAG study to bringing more attention to improved enforcement and alternative funding mechanisms. Ms. Price pointed out that MAG had many ideas on how to approach the funding issue. Karen Gifford of Merrill Lynch had provided input on funding alternatives. Leonard Ledbetter of Georgia, who has proposed a revolving loan fund for his state, provided information on implementation of such a program. Ms. Price state that it is not clear that MAG would be asked to do additional work on the funding issue. Work on this issue is currently being performed by EPA with contractual support.

Summary of Public Responses

Charles Mooar discussed responses to the Federal Register notice. Quite a number of responses to the notice were submitted. Many were detailed and well thought out in their presentation. The comments were in response to a February 16, 1984 Federal Register notice outlining the scope of the study and the issues that were to be considered in preparing the study. Twenty-four responses were submitted initially, with more provided after the deadline period. The papers submitted will be appended to the final report to be submitted to Congress next year.

The summary of responses indicate a consensus on many points of concern but indicates some divergent views as well. The first summary is an overview of needs and capabilities as seen by the respondent groups. Many of the respondents representing small municipalities and counties argued that they will face problems in meeting compliance with a 55% Federal share. Resources will be severely constrained as a result of this reduced Federal share, also making it difficult to complete projects currently underway. In some cases, a drop in funding will result in projects being shifted to a lower spot on the state priority list. The small community respondents also emphasized the difficulty which communities may have in getting communities to support a 45% cost share

funded through bond elections. Communities often need complete systems and are concerned that this cannot be achieved if Federal funding is reduced. These respondents also felt that the inability of small communities to pay should be considered in any funding proposal.

Respondents representing large municipalities felt that cities deserve a larger share of total federal funds to solve significant water quality problems. The construction grants program as currently operated hasn't provided the cities with sufficient funds to meet their sewage requirements.

Respondents in this category also felt that, because of economies of scale in larger systems, municipalities miss out on needed funds when an "ability to pay" criteria is applied. Therefore the Construction Grants program should not consider ability to pay in establishing funding. Large municipalities also argued for eligibility of combined sewage overflows for construction grant funding. CSO's are large, expensive, and will not be completed without federal aid.

To improve funding for large municipal tratment projects, the Association of Municipal Sewage Agencies proposed a two-tier approach whereby major metropolitan areas would receive 80 percent of appropriated funds above the existing $2.4 billion funding base. Respondents representing states indicated that state grants programs connot be expanded significantly. Their ability to "jump into the breach" to assist municipalities and counties would be limited.

Respondents in the "interest group" category included engineering consultants, environmentalists, equipment manufactureres, and financial organizations. These groups shared the opinion that the capability and necessity of completing both the eligible and ineligible projects mandated by the Clean Water Act must be considered in developing the funding program. These respondents felt it important to push for compliance with all requirements of the Act, and wish to avoid a situation where a program designed to maximize funding of eligible projects may become detrimental to construction of ineligible projects.

The second summary presented by Mr. Mooar addressed the respondent's ideas and concerns regarding local self-sufficiency.

Respondents in the "small municipalities and counties" category felt that some federal assistance would always be needed, especially in the area of capital improvements. Related to this, respondents believed that user charges must be affordable to promote long-term self-sufficiency.

In the area of enforcement, small community respondents said that enforcement actions should not be taken in a situation where grants have not been awarded. Many felt that a failure to obtain a federal grant was not fair to begin with, and that being penalized for failing to take steps where federal assistance had not been available to assist them was particularly unfair. As with all other respondent groups, the "small community" group supported local responsibility for operation and maintenance, growth, and replacement of plants.

Respondents representing large municipalities indicated that a strong federal role in enforcement was very important to achieve compliance with the Clean Water Act. Local responsibility for execution of projects is also essential. Respondents from the states concurred that strong Federal enforcement would be needed for the program to succeed. Interest group respondents felt that user charges must cover operation and maintenance, growth, and replacement costs. They also concurred that strong federal enforcement is crucial to the program's success.

With regard to capital financing and delivery for the program, small community respondents felt that grants would be the most affective way of meeting their needs. They noted that if a loan program was established, these loans would have to be interest-free. Large municipality respondents saw privatization as an interesting concept which is worth investigating, but did not see it as a panacea for funding needed projects. Generally, these respondents favored continuation of the grant program, with the possible addition of a loan program.

State respondents showed interest in having the flexibility to use the full range of financing alternatives. One respondent felt that the current program, by not allowing adjustment of grant shares according to a community's need, was allocating funds in an inefficient manner. State respondents were interested in the idea of state infrastructure banks, or state banks for wastewater treatment facilities. The state of Georgia, for example, has been pursuing the establishment of a state-run fund for wastewater treatment facilities.

"Interest group" respondents supported the concept of privatization as an effective means to accomplish the goals of the Clean Water Act. Without a grants program, they felt that the needs and goals of the Act cannot be achieved. These respondents felt that privatization would provide cost savings through improved project management. The community would benefit from tax breaks provided for investors through tax credits, and accelerated cost recovery through five-year depreciation. The interest groups also supported a revolving loan concept whereby state governments would provide loans and loan guarantees for projects. This group also expressed considerable interest in the guaranteed loan program where initial Federal dollars would be set aside as a reserve for leveraging construction projects.

The Farmer's Home Administration, the one federal agency that responded, noted that their combined loan and grant program had a low default rate of .002 percent. This may indicate the effectiveness of such a financial arrangement.

Mr. Ames closed the discussion and asked for questions from the audience.

Open Discussion

Mr. Grady Harmon of Harmon Engineering in Alabama expressed concern that user charges should reflect debt service and replacement requirements, and that revenues collected for these purposes go into a sinking fund. Mr. Longest replied that changes in the user charges have been considered. Under the current program, operation and maintenance costs as well as limited replacement costs must be built into user fees in order for sewerage agencies to

receive step three grants. Expansion of the user charge to include debt service recovery will be considered in the study. Expansion of a user charge to cover total long-term replacement is not envisioned, as borrowing at a later time can occur to finance new projects.

Mr. Harmon raised concerns about financing of plants for small communities, in which per capita costs to the community served would be far greater than those to large municipalities. He indicated that some cost savings could be achieved if several small plants in an area were to be managed by a single company.

Mr. Longest asked Mr. Sorrett, of Touche, Ross and Company, whether the small size of a community may work against private sector funding. Mr. Sorrett felt that, with state loan guarantees and other forms of security in place, this would not be a problem.

Mr. George Marcou of the American Planning Association asked whether money would be available under the program to update municipal needs studies. Mr. Longest replied that funds were previously available for this purpose, but that new funding for this purpose would not be available. Mr. Harmon raised a question about the lack of incentives for long-term reinvestment under the privatization approach. He expressed concerned that investors might "walk away from" the treatment works after taking advantage of the tax credits and accelerated depreciation benefits. Mr. Sorrett replied that at the end of a long-term lease agreement with a community in which the plant owners have taken full advantage of the tax benefits, the owners will find it worthwhile to make the plant available to the community at low or no cost. He also emphasized that investors will not go into such an endeavor for short-term tax gains, but that full financial benefits would stem from revenues generated from responsible, long-term operation of the plant.

George Gaberlavage of the National Association of Regional Councils expressed concern that without sufficient federal control the construction grants program could be a subject of contention at the local political level, particularly where the requirements would necessitate large expenditures at the local level.

Adjournment

Mr. Ames adjourned the session, and encouraged attendees to submit their ideas and concerns regarding the program to the Office of Water Program Operations.

SUMMARY

MEETING OF THE TASK FORCE ON THE FUTURE FUNDING OF MUNICIPAL WASTEWATER TREATMENT

July 19, 1984
9:00 a.m. - 3:00 p.m.
Room 2126 Mall

PHILOSOPHY OF STUDY - JACK RAVAN

Mr. Ravan opened the meeting by stating that the Construction Grants Program is in a period of transition signaled by the 1981 Amendments. The program is moving in the direction of long-term state and local self-sufficiency--the original intent of the CWA. Other rationale supporting this transition, are:

- Allowing the unit of government closest to the problems to assume greater responsibility,
- Issue of increasing national deficits,
- Impetus to simplify the Federal budget,
- Increasing the pace of construction to buy out immediate treatment needs,
- Designing user charge systems which more aptly reflect the true costs of treatment, and
- Preparing for the major program shift away from capital construction to emphasis on adequate O&M programs and rehabilitation, replacement, and expansion of existing facilities.

Mr. Ravan expressed the need for continued federal financial assistance for the time being, but noted that, as we look towards the future, we need to be thinking about designing programs which provide enhanced incentives for States and localities to move towards self-sufficiency. In summary, Mr. Ravan stated that the study is asking a major question--what is the best way to structure and leverage these Federal monies to provide incentives to States and localities to achieve and maintain long-term compliance on a self-sufficient basis?

KEY CONCEPTS IN SUMMARY OF FINDINGS - HENRY LONGEST

Mr. Longest summarized the purpose of the preceeding two Task Force meetings: the purpose of the first meeting was to reach consensus on the bounds of the study, e.g., eligibility issues and the percent of federal share in meeting backlog needs; the purpose of the second meeting was to present the findings/recommendations of the MAG report and reach a consensus on the future direction of EPA's Construction Grants program. In summary, the MAG report

recommended a stable source of federal funding to States at a level of $3.5 billion per year over a ten year period, increased state flexibility in the use of such funds as State grants, revolving loans and for interest subsidies, and an adequate period transition from a Federal program to a self-sufficient State/local program.

Mr. Longest then noted that the purpose of this meeting was to reach a consensus on the future direction of the study. The morning session is intended to bring the Task Force up to speed on what has been accomplished on the staff level to date, with the afternoon session directed at arriving at a consensus on the future direction of the study.

As a basis upon which to discuss the key concepts provided in the "Summary of Findings," charts were presented that described what has taken place to date in the construction of POTWs. The first graph depicted cumulative Federal/State/local expenditures invested in construction since 1959. Mr. Longest noted that we have come a long way ($130 billion invested through 1982), with States and localities having contributed heavily. In terms of immediate treatment needs, we are approximately $35 billion from meeting the backlog.

The next graph demonstrated the substitution of Federal funds for State and local funds over time. This chart showed that even though States and localities have contributed heavily to POTW construction, there has been an absolute and relative decrease in State/local financial contribution over time as Federal funding increased. These funding patterns tracks closely. In addition, not only did State and local governments contribute less dollars as Federal funding increased, but State/local funds were increasingly provided on a matching basis (tied to the Federal grant program). This brings us to a probable hypothesis that State and local governments could pay for more wastewater treatment need over time as the Federal government slowly pulls out if proper mechanisms for local self-sufficiency are put in place. State studies performed by OW, OWPO and ASIWPCA (summarized in the appendix of the "Summary of Key Findings") confirm the cause and effect relationship depicted in this graph.

Mr. Longest then presented an overview of some of the key concepts presented in the "Summary of Findings." For the first time, we are systematically concentrating on issues broader than initial construction--specifically, O&M, rehabilitation, and future replacement and expansion questions. These concerns are depicted as follows:

- Concern 1 - Immediate treatment needs to comply with standards
- Concern 2 - O&M of existing facilities to continue meeting standards
- Concern 3 - Future needs of expansion to adequately treat increases in wastewater flows, and major rehabilitation, replacement or reconstruction of plant components to maintain achievement of standards.

Thus, "managing the transition" means not only the transition to ultimate State and local administrative and financial self-sufficiency, but the transition from Concern 1 (initial capital construction to meet current needs and standards) to Concern 2 and Concern 3. This shift in program emphasis is one which will occur naturally over time, and States and localities must begin to prepare for future financial demands. The second-round grant and growth issues (Concern 3) are ones that OMB is vitally concerned about; EPA is beginning to understand that these will be the big issues in the 1990s.

The "Summary of Findings" also focuses on potential changes in State and local roles and programs as well as changes at the Federal level. It examines appropriate roles and levels of financial administrative responsibility as well as potential levels of state and local financial contribution.

In order to make systematic comparisons of the merits of funding alternatives, both qualitative and quantitative criteria were used. Tradeoffs between criteria must also be considered. Qualitative criteria used to assess alternatives include:

- Improved environmental quality
- Enhanced incentives for State/local self-sufficiency and compliance
- Adequate phase-in period
- Increased stability and certainty in funding levels
- Increased State flexibility in targeting funds to needs
- Maintenance/improvement of an equitable and affordable program
- Enhanced efficiency (administrative feasibility)

Quantitative measurements of time and money include:

- Amount of eligible construction per Federal dollar input (leveraging)
- Grant equivalency to local community
- Amount of State/local capital formation
- Time (years) to buy out backlog needs
- Dollar savings to communities
- Dollar cost to Federal Treasury (including tax subsidy costs)

PRESENTATION OF FUNDING ALTERNATIVES MATRIX - CHARLES MOOAR

Mr. Mooar began his presentation by setting the stage for the transition from initiating and completing construction of facilities needed to treat existing wastewater discharges in accordance with standards (Concern 1) to future needs. The 1981 amendments focused on Concern 1 immediate needs and Concern 3 future needs. (Concern 2 - continuing O&M - has been met primarily at the local level with almost no State support, with the Federal role limited to setting requirements and approving local user charge systems).

Mr. Mooar then described the distribution of these needs by community size by showing graphic representations of backlog treatment needs, backlog pipe (collector and interceptors) and CSO correction needs. There are a disproportionate large share of backlog treatment needs in small communities in relationship to population (i.e., while very small and small communities represent 30% or $7.2 billion of the backlog treatment needs, they comprise only 14.6% of total community population--a 2 to 1 ratio--as compared to large communities which present 53.1% or $10.4 billion needs and 67.9% of the population--approximately 1 to 1 ratio). This is indicative of higher per capita costs and the lack of "economy of scale" at work in small communities. Small and very small communities also represent a large share of total backlog collector and interceptor pipe needs (41.5% or $10.7 billion). In contrast, large and very large communities comprise a very large share (73% or $26.1 billion) of backlog CSOs needs. Thus, the varied composition of backlog needs in different sized communities suggests that States be given more flexibility to address targeting and affordability issues.

Mr. Mooar then presented the major funding options that were being considered.

Mr. Mooar explained the matrix that compares these major funding alternatives against criteria that reflect the goals of the study. These criteria systematically assess the merits of each funding option in affording a transition to State/local self-sufficiency and long-term compliance. The qualitative and quantitative operationalized criteria include:

- Effectiveness: how quickly a funding option will buy out immediate treatment needs, which is dependent on effective targeting, promotion of capital formation for State/local self-sufficiency, timeliness (based on $2.4 billion per year for backlog treatment buy out), and potential flexibility in influencing long-term compliance.
- Equity: on a Region/State/community basis, affordability of user costs as a percentage of monthly household income and the reduction in local user cost per dollar cost to the Federal government.
- Efficiency: the leverage provided by the funding option per $100 of construction starts.
- Fiscal Impact/Budgetary Controls: the impact on the Treasury per $100 of construction; any concerns related to the complexity of the funding mechanism that would increase tax expenditures, contingent liabilities, the rate of

Federal outlays or promote unliquidated balances, and/or would result in the need to use off-budget financing.

- Feasibility: the complexity of administrative requirements to the local/State/Federal government.

- Consistency with 1981 Amendments: potential for increases in Federal costs beyond the Federal exposure delineated in the 1981 Amendments.

Mr. Mooar summarized the tradeoffs of each of the alternatives. The concept of an unleveraged and leveraged State Revolving Fund scored highest from the standpoint of the quantitative and qualitative criteria measurements. Diagrams were used to assist in the description of how the State Revolving Fund might work:

- Unleveraged State Revolving Fund - Block grants (seed money) from the federal government would establish the fund with state matching dollars (if any). The fund dollars would be used to make loans. The loan repayments would increase the fund's worth over time even after the termination of Federal grant dollars.

- Leveraged State Revolving Fund - The mechanism for the leveraged fund is the same as the unleveraged fund; however, seed money could be earmarked for the debt reserve fund which could be invested in a temporary investment account (e.g., SLGS). This would allow states to issue bonds with the proceeds, thus adding more dollars to the fund for loans, and providing a dollar leverage of approximately 4 to 1. Bondholders have to be paid back over time which means that, after approximately year sixteen, the unleveraged fund's worth would surpass the leveraged fund's worth. More dollars would be available, however, in the early years under the leveraged fund option, thus buying out immediate treatment needs faster.

Mr. Mooar requested further direction from the Task Force and Mr. Longest opened the floor for questions/comments.

OPEN DISCUSSION--HENRY LONGEST, VICTORIA PRICE, TASK FORCE MEMBERS

The Task Force questions/comments centered around three areas: further details regarding the State Revolving Fund concept; the need to define Federal requirements for seed monies to guarantee compliance with standards and effective leverage of dollars; and the need to design incentives into the program to ensure prompt and effective State implementation.

Questions Concerning the State Revolving Fund Mechanism/Operation

The discussion opened with an inquiry as to why the the State Revolving Fund was rated moderate to high with regard to promotion of capital formation for

State/local self-sufficiency and its potential flexibility in influencing long-term compliance. Mr. Mooar explained that by giving States the flexibility to leverage and to target funds to meet their specific needs, the timeliness of short- and long-term compliance would be better served than under the current grant program. The authority to provide states with such flexibility as opposed to the current grant program would require legislative changes. As far as the promotion of capital formation, the State Revolving Fund would perpetuate itself through loan repayments (and bond issues under a leveraged fund) after the termination of federal seed money in year ten.

The Task Force wanted further details about how the "low to moderate" impact on Treasury expenditures was calculated. Mr. Longest and Ms. Price explained that although increased Federal tax subsidization might result under the revolving fund mechanism, the Treasury is still in the process of constructing the most accurate model to use in calculating the exact cost. The Treasury is not satisfied with its current model due to the complexity of the variables.

Information on whether the debt service flow would provide sufficient debt surety also was requested. This has been a problem in other programs. Mr. Mooar replied that proper management of the fund would provide adequate debt surety, and that existing laws also address this issue. Task Force members asked that sufficient attention be given to this issue in the final report.

Overall, the Task Force agreed that the assumptions and rating scales used to rank the varius funding mechanisms should be analyzed and presented in greater detail in order to adequately support the findings.

Questions Concerning Fund Controls

The Task Force agreed that as direct federal involvement in the construction of POTWs is phased out, the Federal government needs to maintain adequate control over the targeting of funds to guarantee compliance with the Act. This can be accomplished by instituting certain incentives and disincentives that will facilitate the efficient and effective use of funds. States that efficiently use their dollars to meet needs might be allocated more block grant funds than those States which have not targeted their monies effectively. Task Force members were informed that, according to the Treasury Department, a "pure" block grant/revolving fund approach could not be authorized or run efficiently if too many Federal requirements are attached. This does not mean that States and localities will not be required to meet the goals on the CWA; this is the purpose of any funding alternative put in place. Moreover, the Federal government would maintain its oversight and enforcement role. Mr. Longest also cautioned the Task Force to keep in mind the two different issues that are being addressed: the needed leverage and capital accumulation to guarantee long-term self-sufficiency, and the need to target effectively these funds to provide for long-term compliance.

The following incentives/disincentives and requirements were suggested for consideration by the Task Force in the development of a State Revolving Fund mechanism:

- If a State buys out immediate treatment needs prior to the termination of Federal seed money, funds should still be

allocated under the same formula, otherwise a disincentive to meeting needs will be effected.

- After an adequate time period (e.g., a minimum of 2 years) to allow States to establish revolving funds (e.g., to overcome limiting laws, administrative/management issues), any State that has not instituted a revolving fund might have future allocations decreased by a certain percentage. These monies would be reallocated to States that have established revolving fund.

- Dollar incentives above qualified allotments should be remitted to States that have established revolving funds.

- States could build in an incentive to localities that meet backlog treatment needs to provide for loans to offset O&M costs.

- Performance-based Federal allocations tied to milestones negotiated under Section 106 or 205(g) agreements. (This would probably require legislative changes).

- Guidance to States on levels of loans that need to be paid back to the fund to make the revolving fund concept work effectively.

- Periodic program (as opposed to project) audits of how effectively States have targeted funds. Future allocations would be withheld until certain milestones were met.

- Institute a screening mechanism similar to one utilized in Revenue Sharing Program: monies must be allocated to localities within a predetermined time period or funds revert back to Treasury.

- Enforce utilization of user charges for O&M only by requiring the establishment of a separate account.

The Task Force also requested that the current allotment formula be reviewed to determine whether there are any built-in disincentives to use the revolving fund mechanism.

OPPE STUDIES (WATER QUALITY BENEFITS, CSO)--STU SESSION, SKIP LUKEN

Skip Luken reviewed the "Summary of Preliminary Findings from the Office of Policy, Planning and Evaluation." Mr. Luken noted that the discussion to date on redesigning of municipal wastewater treatment program has centered on financial questions. The purpose of the OPPE study is to put the question of future funding in the context of water quality benefits, i.e., as we redesign the program, how should funds be targeted to water quality needs and different categories of projects.

The objectives of the study on the effects on the Construction Grants Program on water quality include:

- determination of the planned construction grant projects that affect water bodies currently meeting water quality standards.

- for those projects affecting water bodies not currently attaining water quality standards, the percentage of planned construction grant projects which, when operating, will achieve or make significant progress toward achieving water quality standards.

Mr. Luken and Mr. Sessions reviewed the preliminary results and stated that, if these results hold through the full study, they would suggest that it would be worthwhile for the federal assistance program to, in some manner, encourage States to give funding priority to projects where there is a water quality need. In addition, it would be worthwhile to continue AT reviews as approximately 1/3 of AT projects are on streams currently meeting water quality standards.

Mr. Luken also reviewed the current project on urban nonpoint source loads and water quality impacts. Under this project, water quality impacts from urban runoff, CSO and POTW loads will be computed in ten cities. In addition, for three cities, a preliminary analysis will be performed to examine the cost-effectiveness aspects of several general control alternatives. A third project was discussed that will assess the impact of marine CSOs on water quality. The purpose of all three studies is to depict project categories that impact water quality which should be considered by in setting priorities for state fund targeting.

DIRECTIONS ON FUNDING ISSUES FOR THE STUDY AND FINAL REPORT--HENRY LONGEST, TASK FORCE MEMBERS

Mr. Longest asked Task Force members to present any additional questions/directions that should be considered in the final analysis of the funding issues and that should be specifically addressed in the final report. The Task Force members offered the following guideposts:

- 1988 compliance date--extension of federal funding or redesign of the program should not circumvent compliance with standards. If requirements are not met due to extenuating circumstances (e.g., lack of needed funding), a realistic course of action should be negotiated and milestones established.

- 205(g) funds should be allowable to cover administrative costs associated with instituting the new revolving fund mechanism.

- OMB must be convinced that Federal seed money should not be withdrawn after backlog needs are reached. This not only would provide a disincentive to reaching compliance, but

provide an incentive for turning towards initiating expansion projects.

- Assumptions in designing strategies for managing the transition included in the "Summary of Preliminary Findings" need to be "sold" to all interested parties, particularly the concept of the State Revolving Fund as the most promising alternative.

- The question of what party has full recourse to keep revenue to pay bondholders in case of default needs to be considered.

- In order to facilitate selling Congress on the ultimate termination of direct Federal funding support, a contingency plan should be considered that would call for appropriating $2.4 billion over ten or so years, with a tail-off at the end.

- Consideration should be given to providing incentives to States for funding advanced technology, alternative technologies, adequate set-asides for rehabilitation, and other areas that require special attention.

- Localities issued project grant monies will be audited by the Federal government on a project-specific basis as under the current program. Loans will only require broad program audits by States.

- Loan funds can be added to grants only if excessive financial need is demonstrated.

- States should be required to announce its allocation (grants versus seed monies for loans) schedule three months prior to the beginning of the fiscal year.

- Localities should be made aware that by participating in a revolving loan fund, they will no longer have to deal directly with the bond market.

Remaining State Issues to Consider

- The Federal allocation schedule (e.g., quarterly, semi-annual allotments to States) should take into consideration the impact on bond issuance at the State level. There are some States that require that monies actually be in their possession before bonds can be issued (e.g., California).

- Will States be reluctant to establish a new entity--a Water Control Agency--to administer a State Revolving Fund?

- Will increases in bond indebtedness at the State level negatively impact bond ratings?

- How will States that have debt ceiling restrictions be affected? Have the majority of States been excluded from bond indebtedness for water pollution control?

WRAP-UP--HENRY LONGEST

Mr. Longest closed the meeting by providing some additional points on the State Revolving Fund concept. The State Revolving Fund is a very promising alternative--it scores high on both quantitative and qualitative measurements. It appears to provide for the greatest leverage per federal dollar and transition to ultimate State/local self-sufficiency. The only program that can compete in terms of short-term leveraging of the Federal dollars is the 55% matching grant program provided by the 1981 Amendments (effective October 1, 1984). The grant program, however, does not score well against other criteria, such as promoting long-term capitalization of State programs, State flexibility, and long-term compliance. Once grant money is used, there are no further dollars available. This is not an efficient way to use money. Localities may simply wait for grant monies before starting construction, including second grants. With regard to direct Federal loans, this option is an anathema to the Treasury. Moreover, Federal loans do not promote State/local self-sufficiency.

Mr. Longest noted that he was impressed by the time factor accorded by the State Revolving Fund in buying out backlog needs. Based on these preliminary figures, the State Revolving Fund would buy out needs by 1994-1996. However, details on how this fund would work need to be looked into in more depth. In particular, qualitative issues should be focused on next. This includes:

- How can the fund best be structured and leveraged?

- How will States respond?

- Can States effectively administer such a program?

- What will be the Federal role?

- How are affordability issues handled?

- How should States use their monies once backlog needs are met?

Mr. Longest closed the meeting by noting that these issues will be discussed with the Treasury and OMB.

TASK FORCE ATTENDEES
ATTENDANCE RECORD

Jack Ravan	AA/OW	Fran Phillips	DRA, EPA Region VI
Henry Longest	DAA/OW	Jim Horne	EPA, Office of the Comptroller
Victoria Price	OW	Chuck Sutfin	WDD, EPA Region V
George Ames	OW/OWPO	Norman Brandell	OMB
Charles Mooar	OW/OWPO	Bill Whittington	OW
Joel Smith	OPPE/OPA	Elyse DiBiagio-Wood	EPA, OCEM
Bob Greene	OPPE/OPA	Bob Whalen	
Allen Brown	EPA, Office of General Counsel	Roger Reed	
Reginald LaRosa	Pres. ASIWPCA (Vermont)	Patti Shafer	The Synectics Group, Inc.
Harold Hopkins	EPA Region IV		
Skip Luken	OPPE/OPA		
Stuart Sessions	OPPE/OPA		
Mike Quigley	OW		
Ernie Abbott			
Lee DeHihns	EPA, Office of General Counsel		

SUMMARY

MEETING OF THE TASK FORCE
ON THE FUTURE FUNDING OF MUNICIPAL WASTEWATER TREATMENT

October 11, 1984
9:00 a.m. - 3:00 p.m.
Room 3908 Mall

OPENING REMARKS - VICTORIA PRICE

Ms. Price opened the meeting by reviewing the input and reactions to the draft report. EPA has been working steadily with other parties and agencies in the development of the State Revolving Fund concept and has addressed many concerns.

EPA upper management has been briefed and feel that the SRF concept holds promise:

- Jack Ravan, Assistant Administrator of the Office of Water and Chairman of the Task Force, is very supportive. He feels strongly that States should be given the maximum flexibility possible in implementing the revolving fund.

- Al Alm, Deputy Administrator of EPA, also is very supportive. However, he would like to see a stronger linkage of funds to buying out core needs, stronger mechanisms to adequately guard against potential waste, fraud and abuse of funds, and incentives for moving states to the SRF.

Ms. Price stated that as many as possible of the concerns noted above will be addressed in the final report.

The Concerns of Task Force Members

Ms. Price summarized the main purposes of this Task Force meeting: to actively seek additional input from the Task Force members on the report--especially the transitional State Revolving Fund program described in Chapter 6--and to discuss how the issues brought up by Task Force members at the last meeting were addressed within the context of implementing the SRF concept. Ms. Price briefly reviewed these seven areas of concern, noting that Charles Mooar would describe how these issues were addressed in the development of the SRF:

1. The need for short-term incentives for States to accept the SRF program (all Regions and ASIWPCA)

2. The need for State flexibility, especially in addressing the issue of affordability. Will small communities be ignored

by States as States will have the propensity to make low risk loans? (Tex LaRosaa, ex-officio of ASIWPCA)

3. The need to ensure that Federal funds are used appropriately while limiting Federal "strings." (Region 4, EPA's Office of General Counsel and Office of the Comptroller)

4. The need to effectively link Federal funding with compliance/enforcement deadlines (Region 5)

5. The need to provide a stable and certain source of funds for communities to continually meet their wastewater treatment needs

6. The need to provide equitable treatment of States that have addressed all core needs before Federal funds are terminated

7. The need for fairness in allotment formulas such that some communities are not allocated funds at the expense of growth areas with greater needs.

Ms. Price turned over the meeting to Charles Mooar.

STATE REVOLVING FUND CONCEPT--CHARLES MOOAR

Overview

Charles Mooar provided Task Force members with an overview of the State Revolving Fund concept proposed. He noted that it was hopeful that this proposal will be included in the FY 1985 CWA reauthorization.

As discussed at the last Task Force Meeting, once established, the revolving fund would provide a lasting source of State funds to provide for improved and sustained municipal compliance. The key to the program is the element of choice: States have the option to pursue the SRF option, retain the current grants program, or adopt a mix of the two programs. The SRF would be dedicated to municipal wastewater treatment within the broad scope of Section 212 of the CWA, and would be the basis for making direct loans to communities at interest rates set by the States. The loan repayments would be the source for additional loans. Thus, the best feature of the SRF would be the establishment of a self-sustaining source of funds after initial Federal monetary support has been completed.

Beginning in FY 1986, the State would be required to make a decision as to whether to use its allotment for project grants or whether to accept all or a portion of its allotment as a capitalization grant for the SRF. States have the flexibility to make different choices each year. However, the SRF proposed has built-in incentives to encourage State participation.

Mr. Mooar directed Task Force members to the table on page 6-3 of the report, that portrays possible Federal funding levels and their use. The proposed transition period would include authorizations and appropriatioins of $2.4 billion per year through 1991, with a 25% decrease in funds over the three

year transitional phase-out period (1992, 1993 and 1994 at $1.8 billion, $1.2 billion, and $0.6 billion, respectively). This is within the bounds of the 1981 Amendments and the consensus reached at that time. It provides for a total of $27.6 billion over the 13-year period of 1982-1994.

States would not only be given a choice in designing a mix of programs, but also in how to use funds under the SRF. Continuation of the current grants program would mean adherence to the strict program law and regulations. However, the monies used to capitalize the State Revolving Fund could be directed to other wastewater needs, such as growth, which are not eligible under the current grants program. Thus, States would given increased flexibility in funding their specific needs.

There is, however, one caveat to the use of SRF funds: assurances from States that progress is maintained and that the program is managed to achieve needed environmental results. This requires that over a specified time (e.g., 2 years) States target SRF funds in such a way that the core eligible amounts of construction (Categories I, II, IIIA, IVB) will be 125% or greater.. The environmental results assurance figure (125%) is designed to maintain progress in buying out core eligible needs at a rate comparable to that which might occur under the current grants program. For example, under a 55% project grant program with 10% of the allotment dedicated to set-asides, and 20% targeted at non-core eligible projects, the ratio of total core eligible project costs to the State's allotment would be 127%.

Under the SRF option, Federal audits at the project level would not be required. Although each project would be required to maintain a proper audit trail, the management and oversight of the program would be left essentially to the States. "Programmatic" Federal audits would be required, however, to guard against potential waste, fraud or abuse, and to determine what was funded and that State assurance levels were met. This process is consistent with audits of General Revenue Sharing Funds where annual audit reports are designed to determine that objectives are being met.

Addressing the Concerns of the Task Force Members

Mr. Mooar continued his presentation with a description of how the seven issues brought up by the Task Force at the last meeting were addressed in the design of the SRF.

1. Short-term incentives for States to accept the SRF concept

   Funds for an SRF would be obligated by the Administrator once appropriated funds became available and the State has notified EPA of its decision to utilize capitalization grants. Thus monies would be provided up front as opposed to the current grant program. (The proposed six to eight quarter outlay of SRF funds still needs to be worked out with OMB, however, as they are concerned with possible "outlay bulges.") In addition, Federal funds utilized by States for SRF loans and/or grants could be directed to non-core ineligible projects as long as the 125% assurance level was met.

2. Flexibility

   While meeting the 125% assurance level may be difficult in the early years before loan repayments are made, by the fourth or fifth years there could be as much as 1/3 of the funds to use as the State desires to meet their non-grant eligible wastewater treatment needs. States also would have the ability to adjust interest rates to help communities in bad financial condition, although earlier in the program a grant on top of a loan could be detrimental to meeting the 125% assurance level.

   After Federal dollars are terminated, States have total flexibility in directing funds. There are some remaining difficulties in addressing the question of affordability at the expense of equity. This area still requires further analysis.

   Since the current grants program is not sensitive to the issue of affordability, a variable grant share option is proposed that would provide such flexibility: a State could uniformly lower the Federal grant share to 55% or less of eligible project costs, and use set-asides to make grants greater than 55% (up to 85%).

3. Protect Federal investment but limit Federal "strings."

   States will be held to three "strings" if they choose to accept SRF capitalization grants: (1) annual programmatic audits, (2) adherence to GAO procedures to ensure that there is full accountability of Federal funds and that there are no instances of waste, fraud and abuse, and (3) assurance that States have met the environmental assurances required under the program. Although some controls are necessary, according to the Department of Treasury, a revolving fund cannot operate effectively if there are too many requirements.

4. Linkage to compliance/performance deadlines

   States and municipalities can better plan for the availability of funding through the modified State Project Priority List proposed. This modified list would include projects that require construction to comply with applicable requirements, but would not receive grant awards or loans prior to a given fiscal year.

   Since the SRF offers the potential to refinance municipal-financed construction at a future date, municipalities will be encouraged - more so than under the current program - to proceed with early construction of needed facilities using their own funds and sooner meet and maintain NPDES permit requirements.

5. The need to provide for a stable and certain source of funds

A key concept is to establish authorization levels that provide a reasonably high expectation that the full amount will be appropriated. It is proposed the the amounts and timing be consistent with the consensus at the time of the 1981 Amendments and planning figures contained in the President's FY 1985 budget. To provide a signal that authorizations can be expected beyond the initial authorizatiton period, it is proposed that the legislative package be designed so that planning figures for a future authorization are cited in the law, but contained outside actual authorizations.

Mr. Mooar directed Task Force members to Table 6-1 for the details of this proposal. Legislative guidance would be provided to States on the factors to take into account in designing their project priority lists for the period 1989-1994. The modified State Project Priority List would provide a clear message to those municipalities that will or will not receive funding during this period. Since unfundable facilities would have to be financed through locally-issued debt to meet the requirement of coming into compliance with the Act by 1988, projects should not be delayed by municipalities. However, at the same time, the SRF concept offers the opportunity for localities to proceed with construction using their own financial resources, without sacrificing the possibility of refinancing at a later date.

There is a problem regarding the inclusion of planning figures beyond the 1985 appropriation. OMB has noted certain difficulties with making such commitments beyond four or five years. Hopefully, this problem can be worked out.

6. Equitable treatment of States that meet their core needs prior to the termination of direct Federal funding

States that are close to meeting the core needs necessary to comply with requirements should not be penalized for doing so. This would provide a disincentive to effectively managing wastewater treatment programs. Instead, a provision is proposed that once core needs are met, States may use Federal funds for non-core wastewater treatment.

7. Provision for Future Growth

Future growth is the concern of States and municipalities and should not be provided for by the Federal government. The 1981 Amendments reiterated the intent of Congress and the Administration: future growth, rehabilitation and expansion of facilities are ultimately a State and local responsibility.

The SRF, however, helps States and municipalities meet these current and future needs by providing an adequate stream of return revenue from loan repayments to fund any project within the scope of Section 212 of the Act. This includes non-core ineligible projects such as the correction of CSOs, not-treatment related pipe and other needs due to population growth.

OPEN DISCUSSION OF SRF IMPLEMENTATION--HENRY LONGEST, VICTORIA PRICE, GEORGE AMES, CHARLES MOOAR, AND TASK FORCE MEMBERS

The Task Force questions/comments centered around:

- The State assurance provision,
- Ensuring the proper use of Federal funds,
- The need for the provision of technical assistance to States, and
- The feasibility of Federal funding past the 1988 compliance deadline.

125% State Environmental Results Assurance

Tex LaRosa and Chuck Sutfin both noted that the 125% assurance level assumes a direct correlation between compliance and core needs, which may not be true. If a State has taken its allotment, provides a State match, and targets funds to projects included on its priority list, in subsequent years there may not be a sufficient number of projects remaining with which to meet the 125% level.

Thus, some sort of "credit" system or "graduated" assurance level is needed to make an equitable linkage between compliance and the meeting of core needs. For example, if 90% of core needs are met, only a 20% assurance level might be required. Such compliance data can be obtained from the accountability system, according to Mr. Sutfin. Mr. Sutfin also added that this approach would give States the incentive to eliminate core needs quickly so that they can more quickly direct funds to other needs, such as growth. States that continually did not meet their assurance levels should be penalized.

Insuring Proper use of Federal Funds

Some Task Force members expressed concern that without project-level audits EPA would not be able to adequately determine whether Federal funds were used appropriately. One example that was given was how it could be determined whether an oversized plant was built utilizing Federal funds.

Mr. Mooar explained that one major disincentive to building oversized plants is that the increased cost would be passed through to municipalities in the form of increased loan repayments. On a more general level, the program

audits are specifically designed to demonstrate that State environmental assurance levels are met and, in cases where waste, fraud and abuse are suspected, the Federal government maintains the right to perform project-level audits.

There also was some concern regarding the negative impact that the myriad of general Federal protection laws would have on the successful implementation of a State Revolving Fund program. (Task Force members have been advised during the last two meetings that a revolving fund cannot operate effectively if there are too many requirements attached). Ms. Price noted that language could be included in SRF legislation that would limit application of general Federal protection laws to the Civil Rights Act, Davis-Bacon Act and public participation laws.

The Need for Technical Assistance for States

Tex LaRosa noted that while there are approximately seven States that either have enabling legislation in place or are currently operating a revolving fund-type mechanism, other States would not be able to establish a SRF within a one-year time frame. This limitation must be addressed in the SRF program proposed. Technical assistance programs must be established that will promote speedy passage of enabling State legislation and increased debt ceilings in some States, and education as to the proper management of an SRF to ensure that a self-sustaining source of funds is maintained.

Federal Funding After the 1988 Compliance Deadline

Some Task Force members also were concerned that it would be difficult to convince Congress to appropriate funds passed the 1988 compliance deadline. Office of Water personnel noted that although the 1988 compliance date should be retained, many municipalities will be unable to meet this deadline. The capitalization grant was developed to increase flexibility in leveraging funds and speed the pace of construction, so that compliance with NPDES permit requirements can be more quickly met. There also is the potential for States to increase the flow of funds to target core needs in the early years under the SRF (i.e., front-loading). Loan repayments then would be available for financing non-eligible categories, such as growth, in later years.

SET-ASIDES STUDY - JIM HORNE

Jim Horne, from EPA's Office the Comptroller (OC), began his briefing by stating that there are two major reasons for this study. First, the set-aside provisions exert a strong influence on spending patterns for a large amount of funds made available under the Construction Grants program. Therefore, it is important to consider fully the policy objectives of the set-asides, their actual effects (e.g., are there any unintended detrimental effects of the programs), and ways of improving these programs, especially in light of their potential for helping promote the key "consensus goals" described in the report. Second, the Task Force is considering an approach under which the Federal government would help States establish revolving funds, from which the States would finance construction projects. Such a major revision may make it

appropriate to revise some or all of the set-aside programs in order to make them more consistent with the revised program. A key issue is to assess how the current set-aside programs could be restructured under a revolving fund approach.

The purpose of this briefing was to:

- re-cap the basic structure of the set-asides,
- describe the progress on this study to date,
- present interim results of an analysis of potential modifications to the programs,
- request comments on modifications presented, and
- discuss the next steps in the study.

To date, OC has:

- performed an initial scan of set-aside programs
- prepared a paper that describes the programs and identifies and discusses key policy issues
- circulated the paper to Task Force Members and others for comment
- received and evaluated comments, and
- developed an evaluation framework

Currently, OC is in the process of evaluating the set-aside programs in relation to the eight areas of consensus presented in the funding study and identifying and analyzing a range of potential modifications. A written summary of their interim analysis was given to the Task Force members and reviewed briefly by Mr. Horne.

Mr. Horne gave a brief recap of the effect that the set-aside programs have had on the actual dollars that are targeted to wastewater construction needs. The analysis showed that 24% of alloted funds are funding the set-aside programs, leaving 76% of the dollars targeted to core needs.

Impact of Set-Aside Programs on Future Design and Development of the Construction Grants Program

Set-aside programs also appear to be most relevannt to six of the eight consensus areas. For example:

- Promotion of State/Local Self-Sufficiency: As currently designed, the 205(g) program appears to be successful in helping States build the necessary management infrastructure to manage their delegated responsibilities.

- Certainty and Flexibility in Funding: As currently designed, the I/A set-aside appears to cut against the goal that "States should be able to deploy funds flexibly".

- Continued Delegation to States: A policy decision on whether banking of funds should be limited under 205(g) must take into consideration the perception that States may be less willing to accept more delegated activities if banking is limited.

- Linking Between Funding Strategy and Compliance: 205(g) funding levels for individual States could be linked to their overall level of compliance.

- Equitable Distribution of Funds and Affordable Projects: Rural set-aside is explicitly designed to promote equitable distribution in rural States.

- Maximize Leveraging of Available Funds: The I/A set-aside tends to decrease leveraging of funds.

Options for Modifying Set-Aside Programs

Mr. Horne reviewed the preliminary list of options for modifying the programs and asked the Task Force for their input. The options are summarized in Table 1.

The Task Force expresed the following preliminary guidance to the Office of Comptroller in proceeding with it analysis and in making its final recommendations:

- 205(g) set-aside - States should not be required to use excess 205(g) funds for authorized non-205(g) purposes until they have directed funds to other identified wastewater needs, such as pretreatment.

- I/A and rural set-aside - an option should be added that would allow more flexibility in addressing the issue of financial needs and reflects the variable grant share option suggested in Chapter 6 of the report. These set-asides could be used for making grants greater than 55% (up to 85%) for communities with populations less than 3,500 persons. Such grant increases could be made contingent upon a demonstration of financial need by the grant recipient.

- 205(j) planning set-aside - an option should be included that requires that the State fully satisfy wastewater treatment needs before money is alloted to areawide planning agencies.

TABLE 1 OPTIONS FOR MODIFYING SET-ASIDE PROGRAMS

205(g)	I/A	Rural	205(j)
Limit the number of years that a State can bank funds (e.g., 3 years).	Replace reserve with a stand-alone (national pool) appropriation.	Expand coverage to low-cost conventional projects.	Establish as separate program.
The percentage of funds available to State to the degree of delegation attained.	Modify "bonus" to a direct subsidy to be used only to fund the "baseline" portions of projects.	Expand coverage to small communities in urban States.	Restrict scope to include only those directly related to POTWs.
Tie percentage of funds available to State in part to achievement of specified policy goals, possibly including establishment of SRF.	Reduce reserve from 4%-7.5% range to 1%-3% range.	Reduce reserve from 4% to 1%-3% range.	Institute a needs-based allocation formula.
Institute a needs-based allocation formula.	Provide larger bonuses for greater risk "I" projects than for "A" projects.	Reduce uncertainty associated with project eligibility decisions by tightening definitions of "small" and "dispersed" communities	Make program discretionary.
Promote authorized non-CG uses of funds (e.g., permitting under Section 404 of CWA).	Make program discretionary.	Make program discretionary.	

Next Steps

Mr. Horne completed the briefing by noting that a more detailed interim progress package would be circulated in a few days. He asked that the Task Force forward comments on this analysis by October 22, so that a succinct report that reflects the consensus on set-aside programs can be completed by the end of October or early November.

OPPE STUDIES - STUART SESSIONS, JOEL SMITH, BRET SNYDER

Stuart Sessions briefly summarized the four water quality related studies undertaken by OPPE and the issues that they address:

- The relative contributions on loadings of pollutants of municipal point sources (treatment plants) and non-point sources (CSOs, storm sewers and unsewered areas).
- The effect that secondary and advanced treatment has had on water quality.
- The water quality effects and cost-effectiveness associated with CSO control.
- The impact of O&M on the level of capitalization needs.

A handout was provided to attendeees that presented the preliminary findings of these studies. Stuart Sessions, Joel Smith, and Bret Snyder walked through the summary graphs and referred Task Force members to the report circulated early in October for detailed data. The results of the studies to date show:

- The relative loading of municipal point and nonpoint sources vary by Region. For example, total suspended solids from municipal sources range from 6% to 15% in the urban areas of Regions 1-7, while they range from 14% to 53% in Regions 8-10; total suspended solids from urban runoff range from 85% to 94% in urban areas of Regions 1-7 and 47% to 86% in urban areas of Regions 8-10.
- The relative effectiveness of municipal point and nonpoint source controls vary by pollutant. For example, data from Regions 1, 2, and 3 show that conventional point source controls (secondary and advanced treatment) have a greater effect on lowering BOD target exceedences per year than nonpoint source controls. However, CSO and urban runoff (URO) controls are more effective than conventional point source controls in lowering TSS exceedences.
- The relative cost-effectiveness of municipal point source and nonpoint source controls varies by pollutant. For example, in Regions 1, 2 and 3, CSO and URO controls are more cost-effective in removing TSS and lead, while BOD and phosphorous are more cost-effectively removed by municipal point source controls. (These findings are based on the assumption that secondary treatment is in place).
- The number of facilities that can meet their effluent limits solely through improved operation and maintenance practices is significant.
- The relative costs of providing technical assistance are low compared to the cost of the construction project. Savings upwards to 60%-70% have been shown.
- Technical assistance programs funded with Federal and State financial assistance have been successful in bringing wastewater treatment facilities into compliance with their effluent limits.

Mr. Luken concluded his presentation by noting that the structure of the State Revolving Fund and subsequent legislative, policy and regulatory recommendations should take these findings into consideration.

NEXT STEPS - HENRY LONGEST

Mr. Longest closed the meeting by noting the upcoming schedule for completing the study and for preparing legislative and policy proposals:

- The final report is due to be circulated to the Task Force on November 20.
- OMB will present Task Force recommendations to David Stockman in November so they may be addressed during budget pass-back.
- The final Task Force meeting will be held on November 29, when final issues will be addressed.
- The Task Force report will be forwarded to the EPA Administrator during the first week of November.
- Legislative recommendations are expected to be prepared by December or January.

Mr. Longest thanked the Task Force members for their valuable assistance.

TASK FORCE ATTENDEES

Attendance Record

Henry Longest	OW	Elyse DiBiagio-Wood	EPA, OCEM
Bob Blanco	OW	Jim Horne	EPA, OC
Victoria Price	OW	Steve Pressman	EPA, OGC
George Ames	OW/OMPC	Allan Brown	EPA, OGC
Charles Mooar	OW/OMPC	Connie Bosma	OW/OMPC
Brett Snyder	OPPE/OPA	Roger Rihm	EPA, OLA
Joel Smith	OPPE/OPA	Pat Gaskins	OEA, OCL
Bob Greene	OPPE/OPA	Brenda Green	OEA, OIGA
Les Sutton	EPA/Region 1	Myron Tiemens	OW/OMPC
Elizabeth LaRoe	OW/OWEP	Bill Whittington	OW/OMPC
Ralph Sullivan	OW/OMPC	Steve Albee	OW/OMPC
Harold Hopkins	EPA/Region IV	Patti Shafer	TSG, Inc.
Stuart Sessions	OPPE/OPA	Dave Alexander	AMS, Inc.
Reginald LaRosa	Ex-officio, ASIWPCA (Vermont)	Christine Khan	AMS, Inc.
Chuck Sutfin	EPA, Region 5		

SUMMARY

FINAL MEETING OF THE TASK FORCE ON FUTURE FEDERAL ROLE IN MUNICIPAL WASTEWATER TREATMENT

December 7, 1984
9:00 a.m. - 11:30 a.m.
Room 357 Mall

OPENING REMARKS

Bill Whittington opened the meeting by thanking the Task Force for all its hard work in making this study an excellent piece of analytical work. The SRF program is a realistic and workable approach to fulfilling the goals of State and local self-sufficiency and long-term compliance and will have a considerable impact on the direction taken in the reauthorization of the Clean Water Act for FY 1986. Mr. Whittington especially thanked the Office of Program and Policy Evaluation, the Office of the Comptroller and ASIWPCA for their valuable input into the study. Legislative proposals already have been derived to implement the SRF program developed by the Task Force. They will be presented as part of the budget passback.

Jack Ravan, Assistant Administrator for Water and chairman of the Task Force, also expessed his appreciation for the Task Force's input into directing the study; the study serves us well. The impact of this hard work will be felt strongly over the next 12 months. The nation will continue to demand clean water. The difference in the future is how we are going to pay for it. EPA will play a lead role in this determination. Mr. Ravan noted that although there is a significant amount of support for the SRF approach across the country, EPA has a great challenge ahead of it. He concluded his remarks by telling the Task Force the the study will be presented to Administrator William Ruckelshaus next week.

DISCUSSION ON FINAL CHANGES FROM OCTOBER DRAFT

Victoria Price led the discussion on the changes in the final Task Force report from the draft report circulated in October. The changes concerned the structure of the SRF, the expansion of the O&M problem analysis and its linkage to compliance, and the inclusion of a brief presentation on possible changes to Title II of the CWA to enhance SRF implementation. Ms. Price prefaced the presentation by noting that the SRF concept appears to be very popular. However, this does not mean that we are "home free." It is important that Regional and State program managers are supportive and have an in-depth understanding of the proposed SRF program. A communications plan has been put together to address this need. It will be presented by George Ames later in the meeting.

Changes to the SRF

These changes relate to the details of program implementation, not the overall SRF concept.

- Environmental Assurances: Because of the complexity of applying the 125% environmental assurance level to the mix of Capitalization Grants and Title II grants, the requirement was simplified to a 100% assurance level applicable only to the SRF allotment. This should not be difficult to meet. If a State decides to take any of its allotment for SRF purposes and loans the money only for core treatment-related needs, the 100% assurance is automatically met. Of course, loans made for core treatment-related projects for less than full project costs (e.g., 60% to 90%) would increase the leveraging and the environmental assurance level met.

  This change, however, does not address Tex LaRosa's or Chuck Sutfin's concern about how the environmental assurance level would work in those States that are close to fulfilling their need for core treatment-related projects or that quickly address these needs by leveraging monies through bond sales. This area will be addressed in a future guidance document, according to Ms. Price.

- CSOs: Correction of CSOs qualifying under Section 201(n) of the CWA will count towards the 100% assurance level (by request of the Governor of a State where such correction is deemed a major priority and where water quality benefits can be demonstrated). This puts the burden on States to perform in-depth water quality analytical work to determine what is eligible under this section.

- Increased Emphasis on SRF Capitalization: Chapter 6 of the report now includes greater emphasis on the need for States to establish SRFs as quickly as possible. Adequate capitalization of the fund is a critical issue to the success of the SRF program. One of the main concerns of Administrator William Ruckelshaus and Deputy Administrator Al Alm about earlier drafts was how the SRF could be structured to move States into the loan program quickly to provide for a level of capitalization that will assure self-sufficiency and long-term compliance. Otherwise, 10 years from now Congress will be under pressure to establish another "new" program to address wastewater treatment needs.

  The issue of under-capitalization was also a concern of the Task Force at the October meeting. Thus, a description and chart has been added to Chapter 6 that depicts how the earlier an SRF is established, the greater the size of the fund at the beginning of 1995 when Federal funds are proposed to be withdrawn. References also are made to how a State can increase leveraging in the short-term if they

supplement the SRF with their own funds, use grants for State-issued bonds, or supplement the revolving fund with State contributions.

- Bonus Added for States Adopting SRF Program: A bonus plan was added as an incentive for early establishment of an SRF. Bonuses for States that establish SRFs will be taken "off the top" of appropriations beginning in FY 1988 and distributed to States for additional capitalization of their funds. This will generate the sense that States need to establish SRFs quickly. The allowable bonus to any one State will be "capped" to ensure against extraordinary windfalls. No State would receive more than 20% of the funds reserved in any single year. If there are reserved funds left undistributed because of this cap, they would be carried over for use in the following year's reserve distribution. The bonus set-aside would range from 10-25% of total SRF allotments from FY 1988-FY 1991.

- Change in Length of Authorization Periods: To better address the critical need for certainty in Federal funding expressed by States, the initial authorization period was extended to five years from four years (FY 1986-FY 1990), and the second authorization period was shortened from five years to four years (FY 1991-FY 1994). This timing would be consistent with the consensus at the time of 1981 Amendments and planning figures contained in the President's FY 1985 budget. The phase-out of Federal funds could still be started in FY 1992.

- Explicit Delineation of SRF Project Eligibilities: There were a great deal of questions regarding how to limit SRFs to the funding of wastewater treatment needs. Thus, the final report notes that SRF funds must be dedicated to the projects authorized under Section 212 of the CWA.

- Variable Grant Share Dropped: The proposal in the October draft noted that if a State uniformly lowered the Federal grant share to 55% or less of eligible project costs for all projects (including potentially grandfathered phased/segment projects), the rural set-aside and innovative and alternative set-aside monies (each at 4% of a State's grant allotment) would be used for making grants of greater than 55% (up to 85%) for communities of less than 3,500 persons. Such grant increases might have been made contingent upon a demonstration of financial need by the grant recipient. However, it was felt that such an option did not give impetus to States to establish an SRF quickly. Tex LaRosa's concern for addressing affordability (in smaller communities, particularly those that are sometimes affected by "diseconomies of scale") could be addressed in another manner. A State could give a loan to such communities on top of a grant if both the Title II and SRF program were operating concurrently. A State could also give such communities a lower interest loan.

- State Financing Plans: The assurance mechanism that was earlier referred to as a expanded State Priority List is now referred to as a State Financing Plan. A State Project Priority list could be modified to provide localities with this financing information on the availability of funding.

Compliance and O&M References

Although in the October draft the need for improved O&M was touched upon, many issues were not resolved. The study, however began to stimulate a great deal of thinking regarding the role of O&M in State and local self-sufficiency and long-term compliance. Thus, PAD staff were requested to prepare a section on the special attention to O&M needed by Federal, State and local governments which was added to Chapter 3 (Background). Options for new programs on all levels of government were outlined and current State O&M programs also were added to Chapter 4.

The study also initiated a great deal of discussion on the importance of enforcing municipal permits and meeting applicable NPDES permit requirements. The attainment and continued maintenance of compliance by all municipal facilities will require enforcement of O&M requirements in permits, and collection of adequate fees and revenues to meet rising O&M and replacement costs. Thus, capital construction bonuses for States with good compliance rates was proposed. This option could be implemented either by modifying the allotment formula or utilizing available realloted funds. Another option for capital construction bonuses would be keyed to the one-year performance certification required by grantees. Where a project meets project performance standards, an allotment bonus could be provided to the State for use in its revolving fund.

Chuck Sutfin noted that the consenus of Region Water Division Directors was against the proposal in its present form. The current compliance rate system does not always provide reliable information. In addition, parameters for "good compliance" must be established. A workgroup headed by Mr. Sutfin will study this issue further.

Title II Project Grants

Mention was made in Chapter 6 to the possible Title II changes needed to enhance SRF implementation. A brief conclusion to Chapter 6 was prepared that noted that while the independence provided to States establishing SRFs represents a fundamental and philosophical change from the traditional grant program, some changes in Title II requirements might be needed to remove specific obstacles to prompt State movement into the proposed SRF program. These areas are in need of further study:

- Analysis of second-round grant pressures and their negative impact on long-term compliance and self-sufficiency goals. This led to a proposal to prohibit second-round grants.

- The limits of leveraging Federal monies due to the large number of grandfathered 75% grants (phased/segmented projects). These projects also create pressures for the continuation of the project grant program, and slows the pace of State assumption of SRF responsibilities and long-term SRF capitalization.

- Options for treatment of set-aside programs that would limit their negative impact on the leveraging of Federal funds.

COMMUNICATIONS PLAN

George Ames gave a brief presentation on the efforts to date in building a national consensus on the shape of alternatives for future Federal financing of municipal wastewater treatment, and on future efforts to inform Regional and State program managers and environmental constituency groups about the proposed SRF program.

Up to now the communications strategy has been informal, but there were goals established. Information and opinions was collected from a variety of sources and a great deal of data was analyzed. Specifically:

- EPA Task Force on Future Federal Role in Municipal Wastewater Treatment heard directly from Federal and State government agenices: FMHA, FFB, OMB and the State of New Jersey; ASIWPCA contributed a survey of new funding programs developed in 10 States.

- Call for Papers in February 16, 1984 Federal Register: solicited input from public and private sectors on range of funding options and evaluation criteria. Approximately 30 responses were received which helped direct report efforts.

- Management Advisory Group (MAG) to the Construction Grants program (official advisory group to program for 11 years) was asked by Administrator Ruckelshaus to study future funding mechanisms. A report was completed in May 1984, which was very helpful. It outlined general areas of agreement and consensus that were picked up on in the report. MAG heard from a wide variety of major public and private sector organizations during deliberations including: WPCF, AMSA, ACEC, WWEMA, NSPE, NLC, ASIWPCA.

- An ad hoc State Workgroup, representing ASWIPCA (NY, PA, IL, UT, OH, CA) reviewed the draft report at the October's Branch Chief's meeting and gave helpful input into the final report.

We are now entering a more formal stage of the communications plan, Mr. Ames continued. Given the significance and complexities of potential changes which Congress may approve in the Construction Grants program, it is important to assure that Regional and State program managers are adequately informed about potential new directions. In particular, an in-depth understanding of the proposed SRF program is necessary. Thus, six Regional workshops have been scheduled at Regional offices:

- December 18: Philadelphia
- December 20: Atlanta
- January 10: Dallas
- January 15: Denver
- January 17: San Francisco
- January 22: Chicago

Headquarters have been working with Region and State officials to encourage attendance. Letters also have been sent by State Directors of Environmental Agencies to Governors' offices requesting representation.

Mr. Ames concluded his presentation by noting that a plan for formal communications with constituency groups would be developed in the next week.

The meeting was closed at 11:30 a.m.

TASK FORCE ATTENDEES

ATTENDANCE RECORD

Jack Ravan	AA/OW	Chuck Sutfin	EPA, Region V
Henry Longest	DAA/OW	Brett Snyder	OPPE/OPA
Victoria Price	OW	Dick Barlow	State of Conn. (ASIWPCA Rep.)
Charles Hooar	OW/OMPC		
George Ames	OW/OMPC	Roger Rihm	EPA, OLA
Mike Quigley	OW	Elyse DiBiagio-Wood	EPA, OCEM
Bill Whittington	OW	Tom Whalen	EPA, OMPC
Ralph Sullivan	OW/OMPC	Brenda Green	OEA/OIGA
Joel Smith	OPPE/OPA	Lynn Eichmiller	ASIWPCA
John Adams	OC	Patti Shafer	TSG
Harold Hopkins	EPA, Region IV		

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APPENDIX D

STUDIES PREPARED BY ORGANIZATIONS OUTSIDE EPA

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APPENDIX D

STUDIES PREPARED BY ORGANIZATIONS OUTSIDE EPA

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Association of State and Interstate Water Pollution Control Administrators

ASIWPCA

Robbi J. Savage
Executive Director
Secretary Treasurer

May 30, 1984

Ms. Victoria Price
Consultant
U.S. Environmental Protection
Agency
401 M Street, S.W.
Mail Stop WH-556
Washington, D.C. 20460

Dear Ms. Price,

I understand that you are contemplating development of case studies in the POTW Study covering States which have grant, loan, and/or credit enhancement programs. As you discussed with Lin Eichmiller of my staff, such information can provide valuable insight into the flexibility necessary at the national level and the State capability to administer variations on the current Federal program.

You may recall that, based on your request the Association is looking into this issue for the POTW Study Task Force, and, as promised, the results will be available to the Agency. Because we have already requested very detailed information from several of our key State members, I do not believe it is appropriate or timely for the Association to become involved in additional case study activities. The information of record, some of which I am attaching, should be useful to you and the POTW Funding Study Task Force.

I am hopeful that the POTW study together with Association activities will provide information beneficial to the future Federal program. I appreciate your coordination with the Association. Such communication helps greatly in minimizing duplication and facilitating State cooperation.

Sincerely,

Robbi

Robbi Savage
Executive Director

RS/dls

Enclosures: November 1983 ASIWPCA Statements
State Program Descriptions

cc: Reginald LaRosa
Robert Moore
Fred Esmond

STATEMENTS

ASIWPCA

THE STATES'
Water Quality Fact Sheet

November, 1983

UPDATE ON INNOVATIVE FINANCING TECHNIQUES AND OTHER STATE INITIATIVES TO ADVANCE MUNICIPAL COMPLIANCE WHICH HAVE BEEN RECENTLY ADOPTED OR UNDER CONSIDERATION

A. FINANCIAL ASSISTANCE

Status

Measurable and substantial progress has been made since passage of the 1981 Amendments in creating State programs to provide some form of financial assistance to local communities in meeting their responsibilities under the law. As indicated below, it has taken many forms. Several trends can be seen in examining these efforts. Loan programs are becoming more popular as perpetual revolving funds and fiscally conservative alternatives. As programs are developed, State are increasing coming to the conclusion that the smaller communities are particularly in need of subsidy.

States are not just developing an single program but appear to be moving toward a tiered approach containing a number of programs in response to the diversity in municipality capability and water problems. The decrease in the Federal share will cause some State to reexamine the impact on the State funded programs.

In the last 1-2 years, the following programs have been instituted. (Of course, other States have similar existing programs.) Generally these initiatives, once adopted, require several years to become fully funded and operational. In at least one instance, 205(j) funding is being used to develop the administrative framework:

Loans

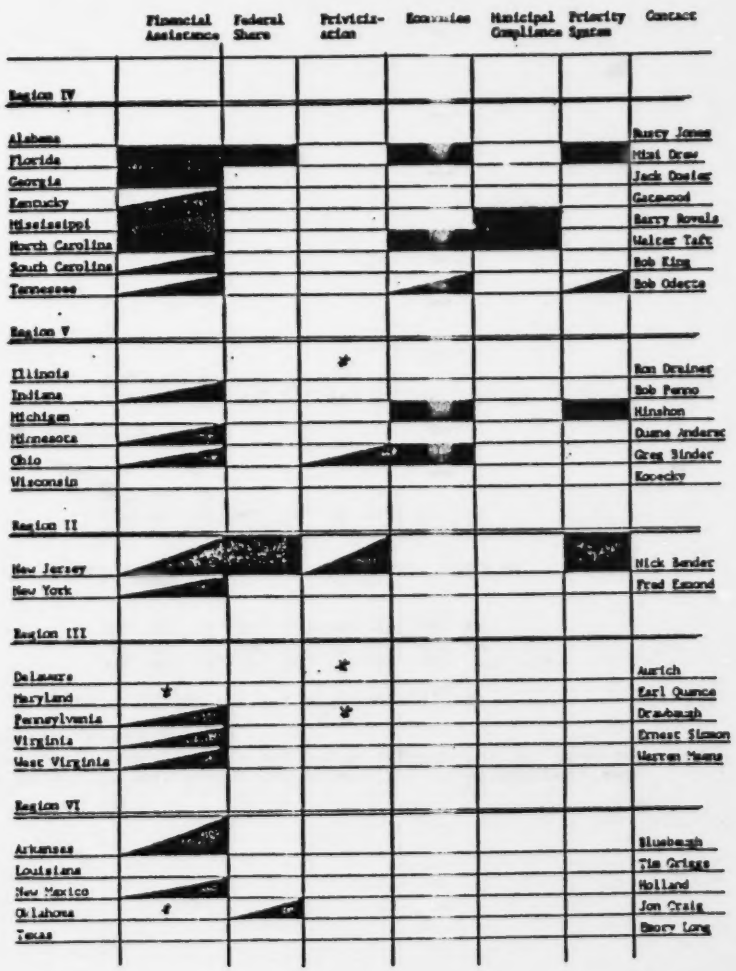
General basic program	MO, MS
Loan Quarantees	MT, UT
Step 1 & 2 work	HA

Association of State and Interstate Water Pollution Control Administrators

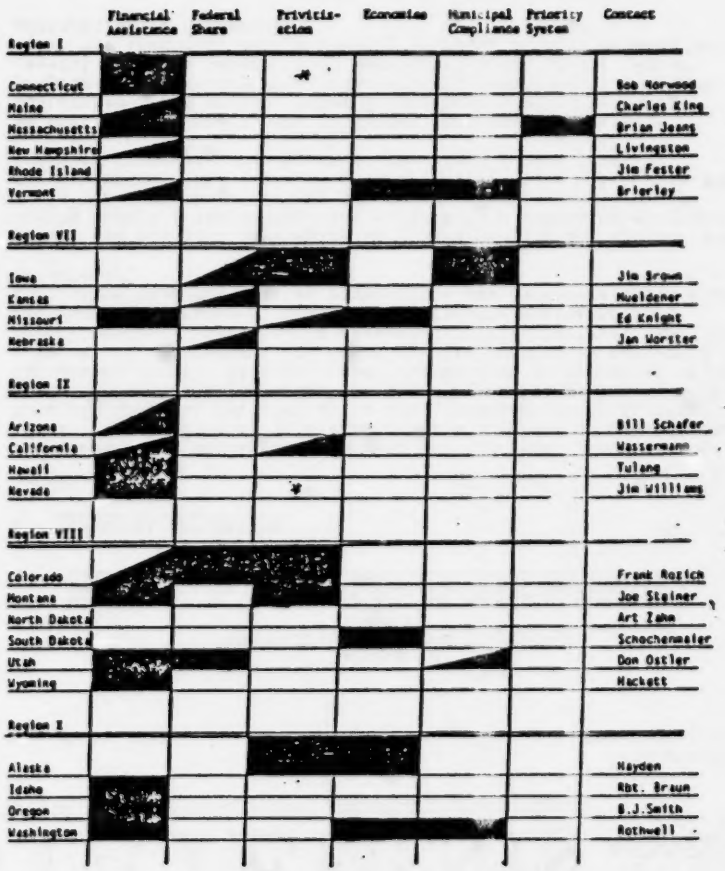
Hall of the States • 444 North Capitol Street, NW, Suite 330 • Washington, D.C. 20001

[illegible] Savage — Executive Director (202) [illegible]

PROGRAM AREAS IN WHICH STATES HAVE UNDERTAKEN INITIATIVES IN 1982 and 1983 TO PROMOTE MUNICIPAL WASTEWATER TREATMENT*



	Financial Assistance	Federal Share	Privitiz-ation	Economies	Municipal Compliance	Priority System	Contact
Region IV							
Alabama							Rusty Jones
Florida	■	■		■		■	Mimi Drew
Georgia	■						Jack Dosier
Kentucky	◢						Gatewood
Mississippi	■				■		Barry Rovals
North Carolina	■			■	■		Walter Taft
South Carolina	◢						Bob King
Tennessee	◢			◢		◢	Bob Odette
Region V							
Illinois			*				Ron Drainer
Indiana	◢						Bob Penno
Michigan				■		■	Hinshon
Minnesota	◢						Duane Anderson
Ohio	◢		◢	■			Greg Binder
Wisconsin							Kopecky
Region II							
New Jersey	◢	■	◢			■	Nick Bender
New York	◢						Fred Esmond
Region III							
Delaware			*				Aurich
Maryland	*						Earl Quance
Pennsylvania	◢		*				Drawbaugh
Virginia	◢						Ernest Simmon
West Virginia	◢						Warren Means
Region VI							
Arkansas	◢						Bluebaugh
Louisiana							Tim Griggs
New Mexico	◢						Holland
Oklahoma	*	◢					Jon Craig
Texas							Emory Long



* Note: In addition to the recently established programs indicated above, many states have ongoing funding programs which include the following:

Grant programs for Title II activities:

AK, AR, CA, CN, DE, HA, ID, IND, IO, ME, MD, MA, MI, MN, MO, NB, NH, NJ, NM, NY, NC, PA, RI, VT, WA, WV, and WY.

Grant programs outside the Federal program:

AK, CA, CO, CN, GA, HA, ID, ILL, ME, MD, MA, MN, MO, NM, NC, SC, VT, WA, WS, and WY.

Loan Programs:

AR, CA, FL, MD, MS, NV, OH, OR, TN, TX, WA, WV, and WY.

Grants

General basic program	FL, MO
Local sales tax setaside	NC
Comprehensive loan/grant program	GA, MO

Study Commissions

Formal bodies or studies instituted to examine financing alternatives at the State and local level	AZ, CN, ME, TN, MN, MT, ID, PA, VA GA, WV

Other

Bond bank	NV
Separation of State Grant program from Federal	ID
Lowering of match in independent State grant program to 55%	WA
Active promotion of the State bond program	FL
Increased State match	CN, IN, MD, WY,
Cutback in funding State grant program	IL, WS

Other States are taking such programs under serious advisement and are at different stages of development including:

• Loans	SC
• Loan guarantees	AZ, ID.
• Establish new grant program	VT, WY, KY, NM, TN
• Bond issue for grants	CA, ME
• Infrastructure Program	NJ, WA, WV
• Subsidies to hard pressed communities	UT, TN
• Water use tax	ID

Case Studies

New Jersey Infrastructure Bank -- The possibility of losing the 75% Federal match led several communities to object to including municipal wastewater treatment in the bank. Consequently for the moment, wastewater treatment has been dropped from the package. This problem was not anticipated and therefore difficult to moderate when it arose on the floor of the legislature. The possible lessions which can be drawnfrom this experience include:

- o try very carefully to anticipate such problems
- o establish formal, high level policy coalitions to provide the momentum and credibility if things get rough

Utah -- The $20 Million to subsidize interest rates (at 7.3%) was part of a larger bond issue. Repayments are alloted to a Credit Enhancement Agreement Fund (now seeded with $5 million) to improve through any reasonable mechanism, the marketability of local bonds. The State anticipates that this fund will reduce interest rates 1-2%. $1 of fund monies in essence leverages $8 in projects.

The shortfall of needs which cannot be reached by the Fund or the $20 Million bond issue may eventually be addressed by expanding the Fund. Further subsidies for hard pressed communities are also being considered.

Missouri -- The State set up a program for 55% State loans and State matching. In addition a building bond was passed in which collectors are eligible for a 30% funding (In addition to stormwater, water supply, agriculture, etc). This should provide some relief since collectors are generally not otherwise eligible in the State. As time nears for eliminating reserve capacity, the State is examining the impact of eliminating the grandfather.

Idaho -- An advisory committee is weighing the options. In the interim, the State grant program has been separated from the Federal program. Revenues may be increased to offset the decline in the Federal share. A more relevant tax basis is also being considered for financing including, a water use tax in conjunction with the Department of Water Resources.

Reorientation to a loan program is a future option and the State may consider using the Department of Water Resources to issue bonds for low interest loans.

Montana -- Montana's guaranteed loan program has a variable interest rate depending upon the community's ability to pay. Their financing program is "coordinated in a joint venture" with the Departments of Commerce and Community Development which evaluates projects and identifies appropriate funding mechanisms.

B. FEDERAL SHARE

State proposals to decrease the federal share have had mixed success. Some States dropped this an option early in the process. Some local communities were opposed to a lower share of the funds. Others found the delay needed to reorient financial arrangements offset any advantages. Yet in other situations proposals were successful.

The same pressures which are conducive to privitization and self sufficiency seem to create a better climate for reducing the federal share. Three States have taken such action: Colorado (50%), Florida (55%), and New Jersey (65%). The following States have also been involved:

• Considering	OK, KA
• Considering for phased and segmented projects	NB, OH, MO
• Tried unsuccessfully	NC, OH

Utah -- Utah, in a de facto fashion, reaches the same end by reaching agreement with key communities to fund only certain project phases at 75% -- which is tantamount to a 40% grant for the overall project.

C. ECONOMIES

Many State are making major changes in their programs to encourage and require:

• simplier, more efficient and cost effective treatment systems	FL, OH, WA, MO, VT, SD, MI
• capital avoidance through rigorous efforts to increase treatment efficiencies	VT
• closer scrutiny of facility plans	NC
• limiations to essential construction items (building amenities, laboratories, job standards)	NC, OH, MO
• limitations on cost increases*	NC, PA, OH, FL, MS MO, IL, MI, WS, ID
• intensive effort to close out projects	MS, NC
• local subsidies for low income households	Billings, MO
• deferral of grant amendments	MI

Case Studies

Vermont -- Vermont is considering a dual approach in conjunction with one of four options (a 25% State grant) they are submitting for legislative consideration. Projects would be scrutinized closely to seek treatment economies, long term project phasing to enhance community affordability, and capital avoidance.

On a separate track, an O&M program has been established to work with towns to improve plan performance and make better financial arrangements to achieve the optimum improvements within their means.

North Carolina -- The State is taking several steps to achieve economies with measurable success. Their agressive close out program has netted $25 Million in a fairly expeditious manner. Rigorous value engineering studies are conducted inhouse. Their guidelines on acceptable construction costs have saved 7-10% in project costs. The "reasonable cost" negotiated at the outset is in effect the maximum project entitlement.

Missouri -- Eligibilities are limited to what is identified in the facility plan as of 7/77. Outside laboratory services are encouraged. Lagoon systems for smaller towns are promoted through a streamlined facility planning process.

Louisiana -- Increases for unanticipated costs are generally limited to $250K or 25% of the original grant/year -- which ever is less.

D. MUNICIPAL COMPLIANCE STRATEGY

Some progress has been made to work more closely with communities and institute municipal compliance strategies in the last year. The objectives have been to reach agreement on:

- o a municipality's schedule to achieve compliance with the law, and
- o the necessary financial measures to achieve those objectives

Mississippi, North Carolina, Iowa, Washington, and Massachusetts instituted such strategies -- Vermont and Utah are proposing this approach.

Case Studies

Mississippi At 90 % capacity, the State informs municipalities to make arrangements to become self sufficient or face moratoriums.

North Carolina -- Municipalities in non-compliance are required to make the necessary arrangements to use their allotment of the sales tax setaside or face moratoriums.

Utah -- The State proposes to require all communities to have a plan for maintaining/achieving compliance and developing a financial plan of action. Conformance is required and deadline extensions are continent upon same.

E. PRIORITY LIST MANAGEMENT

Priority list management has become a greater concern in some key areas. The results vary and include:

• special priority for phased/segmented projects to assure completion	AR
• Screening out less efficient or less cost effective projects	FL
• $4 million earmarked for public health hazards	TN
• top priority for public health hazards	NJ
• bypass procedure for projects not ready in June	MA
• increasing emphasis on water quality	MI

F. PRIVITIZATION

Many State are expressing interest in pursuing the involvement of the private sector in municipal wastewater treatment. Of equal significance, local communities appear to be quietly moving on their own in this direction. Activities include:

• Creation of study committee	CO, CA, MO
• Seminars for local communities on concept	OH
• Foster business consortium	CO
• Plan to select pilot projects (using Federal funding for planning and design)	CO
• Local financing of a $100M interceptor	Denver, CO
• Bank ownership of new interceptor	Missoula, MO

Association of State and Interstate Water Pollution Control Administrators

ASIWPCA

Robbi J. Savage
Executive Director
Secretary Treasurer

July 17, 1984

Victoria Price
Consultant
U.S. Environmental Protection Agency
401 M Street S.W. (WH-556)
Washington D.C. 20460

Dear Ms. Price:

The Association, at your request, solicited State case studies in areas of municipal financing of particular interest to the States. Summary submissions are enclosed for your information and use in the POTW funding study. We will be using the results for technical transfer and other ASIWPCA activities. More case studies are expected and will be forwarded to you.

In soliciting case studies, a series of generic questions was forwarded to State participants on not only the type of program, but also why the particular approach was taken, how it was "sold", why it works (or does not work), and accomplishments. The States submitting case studies and their general coverage are summarized below.

Utah	Wastewater loan program, and Credit enhancement program
Missouri	Summary and matrix of the 7 financial programs in the State
Tennessee	Status of Governor Alexander's Clean Water Initiative under the Safe Growth Policy Team with direction of Benjamin Smith
Pennsylvania	State grant program for municipalities suffering unusual financial hardship

New Hampshire	Bond bank
Mississippi	State loan program
California	Bond Act of 1984 -- Small community assistance, loans, grants, and wastewater reclamation
Georgia	Recommendations on municipal wastewater financing
Minnesota	New State grant program
Maryland	State funding strategy

We recognize these case studies are merely an introduction to a vast array of funding techniques currently available but at your request we are soliciting information from various states on our current activities. We are hopeful the results will be useful in U.S. EPA's analysis of the multiplicity of funding techniques currently available. If you have any questions please contact me.

Sincerely yours,

Robbi J. Savage

(Ms.) Robbi J. Savage
Executive Director

RJS/Le/dls

Enclosure

Hall of the States • 444 North Capitol Street, NW, Suite 330 • Washington, D.C. 20001 • (202) 624-7782

STATE OF CALIFORNIA GEORGE DEUKMEJIAN, Governor
STATE WATER RESOURCES CONTROL BOARD
DIVISION OF WATER QUALITY
PAUL R. BONDERSON BUILDING
901 P STREET
P.O. BOX 100
SACRAMENTO, CALIFORNIA 95801
(916) 322-2357

APR 0 3 1984

Ms. Robbi Savage, Executive Director
Association of State & Interstate Water Pollution Control Administrators
Hall of States
444 North Capital Street, NW, Suite 330
Washington, DC 20001

Dear Ms. Savage:

CASE STUDY - INNOVATIVE FINANCING, CALIFORNIA CLEAN WATER BOND ACT OF 1984

In response to your March 23, 1984 request to describe our program funding proposals in light of the 1981 Amendments to the Clean Water Act, the following information is presented:

Program

The State of California, since 1970, has provided a state grant of 12-1/2 percent for treatment projects eligible for federal assistance. California voters have approved bonds totaling $825 million to date. We anticipate that these monies will be exhausted in early 1986.

In addition to the recognized need to continue state grant assistance, the State Water Resources Control Board was concerned with the ability of local government to handle the 20 percent increase in the local share as a result of the cutback to 55 percent at the federal level. Further, there is a growing concern that the grant program resources have been directed towards municipal dischargers and the needs of small communities have been largely bypassed.

This concerns led to the Clean Water Bond Act of 1984 which will provide, if passed by the legislature and approved by the voters, $450 million to continue state assistance for pollution control, wastewater reclamation, and water conservation.

Objective

The objectives of the Bond Issue are:

- To provide continued state assistance in the form of a 12-1/2 percent state grant for communities receiving 75 percent federal assistance.

- To offset the 20 percent increase in the local share for communities receiving 55 percent federal assistance by offering a low-interest loan for 12-1/2 percent of the project costs. The loan is in addition to the normal 12-1/2 percent grant.

- To provide a state funding mechanism in the event the federal grant program ends. In this case, the Bond Law would provide a 25 percent low-interest loan in place of state and federal grants.

- To address the problem of small communities, such as ineligible costs, lack of technical expertise, construction of affordable projects, etc., the Bond issue would provide $50 million in supplemental state assistance to communities with projects costing $2.5 million or less and with populations of 5000 or less. The supplemental assistance would be given to qualifying communities that are eligible to receive the basic federal and state grants. The $50 million will be used to raise the grant funded percentage to 87-1/2 percent of the total project costs. Items declared ineligible by the auditors will be picked up by the state supplemental assistance.

  In addition, the state board will form a small communities task group to provide administrative and technical assistance to help ensure the construction of low-cost affordable treatment works.

- California is a water short state and we have a significant quantity of high quality treated wastewater that can be used to supplement our limited freshwater supply. The Bond Issue will provide $100 million for low-interest state loans to provide and distribute reclaimed wastewater. This money will go to projects that are ineligible for federal assistance.

4. How does it relate to other aspects of the water program?

   It is designed to integrate directly with the federal Clean Water Act Amendments of 1981.

5. What is the source of funds?

   State General Obligation bonds.

6. How was the program sold to the legislature?

   The Clean Water program in California has enjoyed an outstanding reputation both with the electorate and elected representatives. The State Board members have worked with key legislators to help push this program through.

7. How is the program designed to function?

   It is designed to integrate directly with the federal Clean Water Grant Program and to provide a temporary solution to the federal cutback in the grant program. While the bond issue contains provisions to continue assistance after the federal program ends, it is recognized that this money is but a small portion of the state's construction needs. Other programs for raising funds will be needed on a long-term basis.

APR 0 3 1984

Ms. Robbi Savage -3-

8. What is the current stage of program implementation?

The Clean Water Bond Act of 1984 is currently in the state legislative process. It was passed by the assembly and is now in the senate for review. We expect the Bond Act to go before the voters in November 1984. The California Department of Finance has expressed concern over the large dollar volume of the bond issues proposed for the November 1984 ballot. This concern could result in a reduction to the $200 million to $300 million range.

9. Why does the program work or not work?

Our system of state grants works well because it is integrated directly with the federal grant program. Our basic pollution control funds are used for projects eligible for federal assistance. This has the advantage of leveraging limited state and local funds to ensure maximum water quality benefits per state and local dollar invested.

10. What has the program accomplished?

Roughly 90 percent of the publically owned wastewater treatment works are under construction to achieve, or have achieved secondary treatment. The new bond issue is designed to continue our progress toward achieving full compliance with the Clean Water Act.

I hope this covers the information you need. If you have any questions, please call me at (916) 322-2357.

Sincerely,

Eric Torguson

Eric Torguson
Acting Assistant Division Chief

Department of Natural Resources
ENVIRONMENTAL PROTECTION DIVISION
270 WASHINGTON STREET S.W.
ATLANTA, GEORGIA 30334

JOE D. TANNER
Commissioner

J. LEONARD LEDBETTER
Division Director

April 5, 1984

The Honorable Elliott H. Levitas
U.S. Congressman, Georgia
2416 Rayburn House Office Building
Washington, D.C. 20515

Dear Congressman Levitas:

Thank you again for taking the time to attend the Water Pollution Control Federation's reception last week. Your continuing interest and support of the environmental programs in this Nation are greatly appreciated. We are most fortunate to have a person with your understanding and commitment involved with programs as important to our people as the Clean Water Act. Your leadership and guidance to your Subcommittee on Oversight continue to be extremely important to the success of the Clean Water Program.

Your office has now received a copy of the report prepared by the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) which Robbi Savage and I briefly discussed with you during the reception. As you know, Robbi is Executive Director of ASIWPCA and served as Co-Chair during the past eighteen months as we worked with all the other States to develop from a common data base the necessary information to provide to you a meaningful report on progress for the period 1972-1982 under the Clean Water Act. The national report is only a few pages with some meaningful graphics to display for you the progress under the Clean Water Act and I encourage you to take a few minutes to scan the document. If you have questions, please let me hear from your.

On two occasions you and I have briefly discussed a concept of converting over time the funds you make available through Congress for funding construction grants programs under the Clean Water Act to State Loan Banks which we could then use as revolving funds. Over time this would enable us to eventually reduce the demand for Federal dollars because the State Loan Banks would then become a significant source of funding for the program. I have outlined the Georgia concept and discussed it with Governor Harris and received his approval. After you have had an opportunity to scan over this material, I would be pleased to discuss it in greater detail with you and any of your committee staff.

AN AFFIRMATIVE ACTION/EQUAL EMPLOYMENT OPPORTUNITY EMPLOYER

Again, thank you for your continuing interest and support of the Clean Water Program and our other environmental programs.

Respectfully,

Leonard

J. Leonard Ledbetter
Director

JLL:sch
cc: Ms. Robbi Savage
Mr. Robert Prolman

RECOMMENDATIONS FOR A NEW FEDERAL/STATE
FUNDING MECHANISM FOR MUNICIPAL WASTEWATER FACILITIES

The Construction Grants Program should be continued as is for a reasonable transition period during which time States and local governments would be able to put into place alternate funding mechanisms and to take appropriate measures to be able to implement the new Federal funding mechanism.

1: The Construction Grants Program would continue as is for a four-year transition period (FY 1985 through FY 1988). However, during this transition period, States would have the option of placing up to 100% of their construction grants allocation into a State Loan Bank in order to provide low interest or no interest loans to communities for municipal wastewater treatment projects. Eligibilities through the loan program would be the same as those identified for construction grants funding, including the Governor's discretionary funds allowed by the 1981 Amendments to the Clean Water Act. This would allow the States which do not currently have the mechanism in place to provide such loans a period of four years in order to establish such a mechanism.

2: Beginning in FY 1989, the States would be required to place at least 20% of their construction grant allocation into a State Loan Bank. Annually thereafter the States would be required to increase this percentage by an additional 20% of the State allocation until FY 1993 at which time the amount required to be placed into the State Loan Bank equals 100% of the State allocation. In each year beginning in FY 1989, the remaining portion not placed into the State Loan Bank could be utilized either for construction grants or for additional loans through the State Loan Bank. Those States which have not established an appropriate State Loan Bank by FY 1989 would only be eligible for that portion of their allocation which could be used for construction grants until such time as an appropriate State Loan Bank was established. That portion of any State's allocation which is forfeited would be made available to other States which qualified to receive their total allocation.

3: The allocation formula for distribution of federal funds to the States would remain the same. States deciding to implement the loan program earlier than required would benefit through the earlier use of monies from the loan paybacks.

4: All of the funds allocated by the Federal government in Items 1 through 3 above would be required to be used for eligible categories as currently identified, with the Governor's discretion as previously discussed. However, funds which are recovered through re-payment of the loans could be made available for other categories of funding for publicly owned treatment works at the State's discretion.

5: Federal funding of this program should be provided through an annual appropriation of $2.4 billion adjusted annually for inflation over a 14-year period (F.Y. 1985 through F.Y. 1998) in order to meet the projected needs of $35 billion..

6: All municipalities eligible for Federal funding under this program should be placed on a compliance schedule developed consistent with the guidance in EPA's National Municipal Policy.

Mississippi Bureau of Pollution Control
State Loan Program for Municipal Wastewater
Treatment Project Construction

The Mississippi "State Loan Program" was established in 1971 to provide loans for up to 25% of the eligible project costs for the construction of wastewater treatment facilities. In 1973 the program was amended to limit loans to 12 1/2% in response to revisions in Federal law. Loans are repaid over a 20 year period normally via the diversion of sales tax revenue thereby assuring prompt monthly payment. Loans are interest free.

Between program conception and 1976 the Mississippi Legislature appropriated $21,000,000. In 1976 an $11.7 million bond issue was sold using loans receivable as security. This amount allowed Mississippi to move forward with projects that otherwise would have lacked the necessary matching and also provided enough funds to avoid further State appropriation until FY 1979. Between FY'79 and FY'83 a total of $16,000,000 was appropriated (bringing total State investment in this program to $37,000,000).

In February 1984, the final payment was made on bonds outstanding which released loans receivable assets previously frozen as security. This allowed implementation of the original program concept to establish a revolving fund. Repayments are now transferred directly back into the State Loan Fund for the purpose of making additional loans. Legislative authorization is received annually for this purpose.

The total State investment of $37,000,000 is reduced by the bond interest paid of approximately $2,000,000. Thus the maximum amount of loans receivable is $35,000,000. Since this amount is repaid over 20 years and since the average loan will only consist of half the original amount we will annually generate $3,500,000 in repayments/new loans once the program's 20th anniversary is reached (we currently generate only $2,700,000).

Up to a point this program works very well. Procedures are simple and sound. Funds flow smoothly; there is little danger of these funds being cut or shifted to other programs since the repayment deposits and reuse are prescribed by State law. Cash flow is dependable. Loans receivable details are simple to maintain due to the automatic payment approach of diverting sales tax.

The reason the program is not a complete success is simply a lack of resources. Based on our recent level of Federal funds appropriated we would eventually be able to provide the full 12 1/2% loan level allowed. However, recent changes in the Federal program coupled with the inflated cost of projects means the degree of State loan matching currently available will be inadequate to meet local needs.

Because substantial annual investment over more than a decade was needed to build the Mississippi State Loan Program to its present state, it is not felt that the total concept is feasible for a state just now getting started. Most certainly though some aspects of our program such as the revolving nature, the automatic repayment process and the interest free loan concept would be worth consideration.

Minnesota Pollution Control Agency

MAR 30 1984

Ms. Robbi Savage
Executive Director
ASIWPCA
Suite 330
Hall of States
444 No. Capitol St. N.W.
Washington, D.C. 20001

Dear Ms. Savage:

Following is our response to your March 23, 1984 letter requesting information on our proposed independent state grants program. The legislation is currently being considered in both houses and is undergoing revision in committee, so please be aware that the final bill may be quite different from that outlined below. We will respond by number to the questions indicated on the attachment to your letter.

1. The program, as proposed, would provide 50% grants for the planning, design and construction of wastewater treatment facilities. An additional 15% would be awarded for tertiary treatment projects. At the request of the Legislature, we are putting together a system for awarding variable grants depending on financial need. Our hope is to keep it comparable to the federal program to avoid controversy. The federal regulations will govern the program to a large extent. We expect an 8-year program of from $30-40 million per year.

2. The objective is to assist cities in meeting the July 1, 1988 compliance deadline, since federal dollars will not reach everyone on our Needs List.

3. A study was done last fall by Peat, Marwick, Mitchell exploring various means of funding needed facilities. This option was selected because it provides significant assistance to cities who cannot finance their own and is similar to federal funding levels.

4. It is part of an integrated water media program to assure compliance with NPDES permits as quickly as possible.

5. The funding source is state general obligation bonds.

Phone:_____
1935 West County Road B2, Roseville, Minnesota 55113-2785
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6. We are now in the process of trying to sell it to the legislature on the basis that the federal government is serious about compliance by 1988 and that most cities cannot meet that goal on their own. Federal dollars will not reach 1/3 to 1/2 of the cities on the Extended Project Priority List.

7. The program is designed to be parallel to the Federal program as much as possible. Aside from the grant percentage variations, the following differences exist at the moment:

   a. Reserve capacity is eligible. The Governor is very concerned about keeping industry in Minnesota.

   b. Land for stabilization ponds is eligible to encourage their use where feasible.

   c. Reimbursement is allowed to an extent in that specifically targeted cities would be allowed to begin construction the year before we expect to fund them.

   d. Ten percent of the yearly appropriation will be used for projects which will enable economic and industrial development to occur.

8. The program is currently before both houses of the Legislature.

9. It's too early to judge whether or not it will work.

10. Same as 9.

11. It is our hope that the Legislature will appropriate funding at levels sufficient to allow all major construction to occur within the next five years.

We are happy to provide this information and will let you know what, if anything, the Legislature passes.

Sincerely,

Duane L. Anderson

Duane L. Anderson
Chief, Grants Section
Division of Water Quality

DLA/SCM:lah

States Environmental Program Funding Study
Draft Conceptual Approach

I. Study Objectives and Goals

- To educate EPA, OMB, the Congress and other interested groups regarding exactly what their environmental dollars (both State and Federal) "buy", i.e. exactly what state environmental agencies do with current resources and where current resources come from, including federal grants, state resources, permit fees, etc.

- To determine the level of resources necessary to carry out a "full scale" state environmental program and show what additional resources will buy beyond the current level of program delivery.

II. Suggested Approach

- A two phased approach could be suggested to the EPA, including a short run component and a longer run component. Both phases would require a commitment of support from the EPA; the short run component would be designed to mesh with the schedule of the EPA Task Force on Funding and produce results by July, and be relatively inexpensive. However, substantial support would be required for the longer run effort (perhaps on the magnitude of several hundred thousand dollars.)

- Two or three states would make "case study" presentations to Al Alm and Assistant Administrators as part of the work of the EPA's funding task force. Presentations would be made by state environmental commissioner and appropriate program managers. Presentations would be complimented with selected visual aids and would cover:

  - elements of the state program (how the state program is organized and what it does, including administration, permitting, enforcement, development of regulations, technical support, etc.)

  - percentage of total state environmental budget (all sources) devoted to each element of the state program

  - changes in management personnel reductions or other cost-cutting measures undertaken by the state to cope with level or declining support in real terms over the last few years.

  - current sources of state program support

  - "quick and dirty" assessment of program needs which are currently unfunded.

- Long Term Project: Select 6-10 states for in depth evaluation of long term funding needs. Issues to be addressed include:

  - current funding levels and the share of total agency budget devoted to each program activity

  - the additional activities needed to operate the state program at "full scale", and their cost

  - additional environmental benefits which would be realized from a full scale program

  - analysis of options for funding this incremental cost (such options will be identified by the EPA funding task force).

II. Methodology

- A project Steering Committee composed of the three lead environmental commissioners (Cortese, Ledbetter, and Whittaker) and representatives of STAPPA, ASIWPCA, and ASTSWMO will oversee both the short and long term project Specific methodology includes:

- Short term project: intended to represent "off the shelf presentations by states, similar to what most go through in budget briefings before state legislature, etc. The Steering Committee will guide overall approach, but this effort is intended to educate EPA regarding the nature, magnitude, and funding of current efforts in a small number of states, not to be an exhaustive compliation of new data.

- Longer term project: intended to involve the development of new data in a sample of 6-10 states. Working with an independent consultant of well-established reputation, the steering committee will develop an appropriate methodology for surveying state program needs, including the definition of "full scale" programs. The consultant would be expected to collect and analyze the data and prepare a report. Based on this report, the Steering Committee will analyze options for meeting funding requirements, including a long term (5 year) plan for developing additional support.

III. Time Frames

- Short term: presentations completed by early July

- Longer term: study developed and executed over a period of one year.

MARYLAND FUNDING STRATEGY

Maryland's financing strategy is multifaceted. It supplies grants, loans, and loan guarantees as needed. Funding can be utilized for additional assistance on federally funded sewerage projects, loans for the local share of federally funded sewerage projects, grants for specific projects to remove chlorine and/or nitrogen for improvement of water quality of the State's waters, grants or loans up to 100% of eligible cost for projects of wastewater collection or treatment undertaken to correct an existing special water quality need or an extraordinary public health problem, grants for projects for control of agriculturally related non-point sources, grants for projects to reduce pollution from existing urban area stormwater runoff, loans and loan guarantees for industrial pretreatment projects. These funds are made available by sale of general obligation bonds of the State of Maryland and paid for by an annual State tax on all assessable property in the State.

The specific objectives of Maryland's financial strategy is to restore, protect, and improve the water quality of the Chesapeake Bay, its tributaries and other waters of the State. This strategy is an expansion of financing assistance originated in 1962. The embellishment of the latest strategy recognizes the decreasing role of the federal government in level of funding clean water projects and the increasing role of the federal government in emasculating the original intent and concepts of the Clean Water Act.

The latest additions to the previous acts which provided matching grants and loans and specific funding for failing septic tank projects was brought about by the 1975 continuing EPA study of the Chesapeake Bay. This study and report lead to the culmination, "Choices for the Chesapeake - An Action Agenda," a conference attended by the Governors of Maryland, Virginia, and Pennsylvania and Mayor of the District of Columbia held in Virginia, December, 1981. As a result, the Governors and Mayor pledged a joint initiative and regional alliance in Bay-wide management. With the impetus of this conference, the success of the legislation was virtually insured. Public acceptance was cemented tightly when President Reagan added the Chesapeake Bay to his nationally televised State of the Union message.

The strategy is a continuing program to be funded by subsequent bond issues. Previous financing has allowed areas of failing septic tanks which were far down on the priority list to be funded earlier and in some cases to receive a high cost supplemental grant to allow a "fair and reasonable" sewer charge to be levied. This has been particularly successful in rural areas and areas of low income housing located adjacent to, but not within, municipal corporate limits. As such, the usual tactic of forced annexation of virtually unassessable properties has been avoided. Agricultural non-point source pollution projects are too recent to be evident thus far in any water quality evaluations. At this time, early 1983, there is only one community that still discharges raw sewage to a stream without any form of treatment. This will be eliminated in 1985. Primary treatment plants are or soon will be a memory in Maryland.

As with any program that influences a vast eco-system such as the Chesapeake Bay and its tributaries, one can only continue to correct those many areas identified as influential in the protection and improvement of these waters and await the gradual acclaimation of the system to these efforts. Maryland's waters were not degraded overnight and cannot be likewise improved overnight.

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Chief Engineer

Water Supply and Pollution Control Commission
Hazen Drive — P.O. Box 95
Concord, N.H. 03301

April 2, 1984

Robbi Savage, Executive Director
ASIWPCA
Hall of the States
444 North Capitol Street N.W.
Suite 330
Washington, D.C. 20001

Dear Robbi:

This is in response to your letter which we received on March 28, regarding New Hampshire's Bond Bank for municipal wastewater treatment facilities construction.

Judging from the title of the outline sent to us "Case Study - Innovative Financing", there is a misconception that New Hampshire's Bond Bank is an alternative to federal funding of municipal sewerage works. The Bond Bank is a public body corporate which is authorized to issue bonds for the purpose of making loans to municipalities, generally at a slightly more attractive rate. Enclosed are copies of several pages from a Bond Bank publication which give background information on the legalities involved.

It is the State of New Hampshire's position that a reduced federal participation will have severe adverse affects on the local level; particularly on the small, rural communities who will be faced with an exorbitant user charge if they are required to absorb the decrease in federal funding. The goals of the Clean Water Act will not be achieved by this decreased federal funding because local officials will become increasingly reluctant to obligate their towns to debts of this magnitude.

Letter to Robbi Savage
April 2, 1984
Page two

The New England Interstate Water Pollution Control Commission has prepared a report dated March 1984 which also delineates our position on the federal cutbacks.

Very truly yours,

Robert W. Livingston

Robert W. Livingston, P.E.
Assistant Chief Engineer Administrator

RWL:ms
Enclosures

NHMBB

NEW HAMPSHIRE MUNICIPAL BOND BANK

10 Park Street
Concord, New Hampshire
(603) 271-2595

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$3,795,000

NEW HAMPSHIRE MUNICIPAL BOND BANK

(State Guaranteed Municipal Bonds Issue)

1984 Series A Bonds

This Official Statement is provided for the purpose of setting forth information concerning the New Hampshire Municipal Bond Bank (the "Bank") in connection with the sale of the Bank's $3,795,000 State Guaranteed Municipal Bonds Issue) 1984 Series A Bonds (the "1984 Series A Bonds"). The 1984 Series A Bonds are issued pursuant to the New Hampshire Municipal Bond Bank Law, being Chapter 35-A of the New Hampshire Revised Statutes Annotated (the "Act").

The 1984 Series A Bonds are to be issued under and are to be secured pursuant to the Bank's General Bond Resolution (State Guaranteed Municipal Bonds Issue) adopted July 19, 1979, as amended and supplemented by the First Supplemental Resolution (the "First Supplemental Resolution") adopted July 18, 1980, the Second Supplemental Resolution (the "Second Supplemental Resolution") adopted February 12, 1981, the Third Supplemental Resolution (the "Third Supplemental Resolution") adopted June 9, 1983 (collectively, the "Resolution") and its Series Resolution adopted March 20, 1984. The Resolution and the Series Resolution are sometimes collectively referred to herein as the "Resolutions". The 1984 Series A Bonds are the fifth series of Bonds issued by the Bank under the Resolution. The Bank has previously issued $37,260,000 aggregate principal amount of Bonds under the Resolution, of which $32,525,000 is currently outstanding. Additional series of Bonds may be issued by the Bank on a parity with the 1984 Series A Bonds, provided that each additional series will be authorized and secured pursuant to a series resolution adopted in accordance with and under the provisions of the Resolution and the Act. The 1984 Series A Bonds and any additional bonds (referred to collectively herein as the "Bonds"), constitute general obligations of the Bank, and the full faith and credit of the Bank are pledged for the payment of principal, Redemption Price, if any, and interest thereon. The State of New Hampshire (the "State") is not obligated to pay the principal of or interest on the 1984 Series A Bonds and neither the faith and credit nor the taxing power of the State is pledged to the payment of the principal of or the interest on the 1984 Series A Bonds. However, the Municipal Bonds referred to in this Official Statement being purchased by the Bank from the proceeds of the 1984 Series A Bonds are guaranteed as to payment of principal and interest by a pledge of the full faith and credit of the State of New Hampshire.

INTRODUCTORY STATEMENT

The Bank is a public body corporate and politic and is constituted as an instrumentality exercising public and essential governmental functions of the State of New Hampshire (the "State"). The membership of the Bank consists of five directors including the State Treasurer and the State Bank Commissioner, who are directors *ex-officio*, and three directors appointed by the Governor and Council for terms of five years.

Pursuant to the Resolution, the Bank is authorized to issue bonds for the purpose, among other purposes, of providing funds to enable the Bank to make loans to counties, cities, towns, school districts, village districts or other public bodies within the State (the "Governmental Units") having the power to levy taxes. Such loans are made through the direct purchase by the Bank from such Governmental Units of their bonds, notes or evidences of debt (the "Municipal Bonds"). Municipal Bonds purchased from the proceeds of Bonds issued pursuant to the Resolution shall be general obligations of the Governmental Units, but each Governmental Unit shall be obligated only with respect to its own Municipal Bonds and not as to any other Governmental Unit's Municipal Bonds. Pursuant to the Resolution, the Municipal Bonds purchased must be guaranteed as to payment of principal and interest by a pledge of the full faith and credit of the State. The Municipal Bonds purchased from a portion of the proceeds of the Outstanding Bonds and being purchased with a portion of the 1984 Series A Bonds are guaranteed pursuant to Section 5 of Chapter 149 of the New Hampshire Revised Statutes Annotated which provides that the governor and council are authorized in the name of the State of New Hampshire to guarantee unconditionally, but at no time in excess of the total aggregate sum for the entire State of $200,000,000, the payment of all or any portion, as they may find to be in the public interest, of the principal of and interest on any bonds or notes issued by any municipality, town, city, county or district for construction of sewerage systems, sewage treatment and disposal plants, or other facilities necessary, required or desirable for pollution control and the full faith and credit of the State are pledged for any such guarantee. The balance of the Municipal Bonds purchased with the balance of the proceeds of the Outstanding Bonds are guaranteed pursuant to Section 2 of Chapter 195-C of the New Hampshire Revised Statutes which provides that the governor and council may award an unconditional guarantee of the payment of the principal of and interest on bonds or notes issued by certain school districts but at no time in excess of the total aggregate sum for the entire State of $40,000,000. In the event of default in payment of any such notes or bonds, it is provided that the State may recover any losses suffered by it by suitable action. The State Legislature may at its discretion increase the aggregate sums which can be guaranteed by the State. Pursuant to the Resolution, the Bank may purchase from Governmental Units such bonds or any other bonds the payment of which is guaranteed by the pledge of the full faith and credit of the State as authorized from time to time by the State Legislature.

Certain information concerning the State is contained in Appendix D hereto.

Each Governmental Unit requesting the Bank to purchase its Municipal Bonds submits an application form containing certain information concerning the Governmental Unit and the Municipal Bonds proposed to be purchased. The directors of the Bank discuss and accept or reject each application in open meeting. If approved, the Governmental Unit enters into a loan agreement (the "Loan Agreement") with the Bank pursuant to which the Governmental Unit issues Municipal Bonds, each payment of principal and interest on which is equal to the annual amount of principal and interest required to be paid on that portion of the Bonds issued for the purpose of purchasing the Municipal Bonds (the "Loan Obligations"). See PURPOSES, POWERS AND PROCEDURES OF THE BANK.

The Bank is obligated to pay the principal of and interest on the Bonds only from revenues or funds of the Bank and the State is not obligated to pay the principal thereof or interest thereon and neither the faith and credit nor the taxing power of the State is pledged to the payment of the principal of or interest on the Bonds. The Bonds shall in no way be a debt or liability of the State and shall

not create or constitute any indebtedness, liability or obligation of the State. Although the Bonds are general obligations of the Bank, the Bank has no taxing power and has only those powers and sources of revenue set forth in the Act and the Resolution to which reference is made.

The 1984 Series A Bonds are being issued to provide money to: (i) purchase $3,535,000 Municipal Bonds from 3 Governmental Units; and (ii) deposit $260,000 in the Reserve Fund.

The principal of and interest on the $3,535,000 Municipal Bonds being purchased from the proceeds of the 1984 Series A Bonds by the Bank are guaranteed as to payment of principal and interest by a pledge of the full faith and credit of the State of New Hampshire.

The 1984 Series A Bonds will constitute, in the opinion of Bond Counsel, general obligations of the Bank, and the full faith and credit of the Bank are pledged for the payment of principal, Redemption Price, if any, and interest thereon. The 1984 Series A Bonds and other Bonds ranking on a parity therewith which may be issued under the Resolution, will be further secured by the pledge of the Municipal Bonds and the amounts paid or required to be paid pursuant to the Loan Agreements, as hereinafter defined, for principal and interest by the Governmental Units to the Bank on the Municipal Bonds (the "Municipal Bonds Payments") and the investments thereof and the proceeds of such investments, if any, and all funds and accounts established by the Resolution. All Bonds, notwithstanding their date of issuance, are secured equally and ratably by all of the foregoing. Additional series of Bonds may be authorized and issued by the Bank pursuant to the Resolution on a parity with the Bonds.

Pursuant to a General Bond Resolution of the Bank adopted December 1, 1978, as supplemented, the Bank has issued $46,045,000 and has presently outstanding $35,675,000 of its bonds, which are secured separately from the Bonds. The Bank is issuing simultaneously with the 1984 Series A Bonds (State Guaranteed Municipal Bonds Issue) its $4,410,000 1984 Series A and B Bonds pursuant to said General Bond Resolution of December 1, 1978. Neither the issuance of said 1984 Series A and B Bonds nor the issuance of the 1984 Series A Bonds (State Guaranteed Municipal Bonds Issue) is contingent upon the issuance of the other, and each of the two separate bond issues is separately secured.

Effective September 4, 1979, the State legislature enacted the "New Hampshire public utility financing chapter", the stated purpose of which is to encourage and assist the State's public utilities in the financing of facilities for the manufacture and generation of energy by making funds available at reduced interest costs. To accomplish such purpose, such chapter authorizes and empowers the Bank to lend money to public utilities through the purchase by the Bank of utility bonds for public utilities. The bonds or notes issued by the Bank to purchase utility bonds are payable solely from the revenues or funds available therefor to the Bank for financing public utility projects and shall not be a debt or liability of the State nor create or constitute any indebtedness, liability or obligation of the State or be or constitute a pledge of the faith and credit of the State. Any bonds or notes issued by the Bank to finance public utility projects pursuant to such chapter will be separately secured from the Bonds or any bonds or notes issued pursuant to the General Bond Resolution of the Bank adopted December 1, 1978. The Bank pursuant to its by-laws has established separate and distinct divisions to administer its municipal bonds program and its public utilities program. The Bank has issued bonds in the amount of $5,000,000 for the financing of a public utility project for Concord Steam Corporation and in the amount of $1,200,000 for the financing of a public utility project for Hampton Water-Works Company. Bonds issued to finance such projects are, as stated above, secured separately from the Bonds or any bonds or notes issued under the General Bond Resolution adopted December 1, 1978, or from any bonds or notes issued by its small scale power facility division or its educational institutions division hereinafter described.

Effective August 29, 1981, the State legislature enacted the "New Hampshire Municipal Bond Bank Small Scale Power Facility Act" the stated purpose of which is to encourage municipalities to pursue their independent development of small scale power facilities for the production of electric power (defined as a facility which produces electrical energy solely by the use, as a primary energy source, of biomass, waste, geothermal energy, renewable resources including but not limited to the flow of water, or any combination thereof and which has a rated capacity of not more than 50 kilowatts) by assisting them in the financing of such facilities. Such act authorizes and empowers the Bank to lend money to municipalities (counties, cities, towns and village districts) through the purchase by the Bank of municipal small scale power facility general obligation or revenue bonds. The act establishes a separate small scale power facility division and provides that bonds or notes issued by the Bank to purchase municipal small scale power facility bonds are payable solely from the revenues or funds available therefor to the Bank for financing municipal small scale power facility projects and shall not be a debt or liability of the State and neither the faith and credit nor the taxing power of the State shall be pledged to the payment of principal of or interest on such bonds. Any bonds or notes issued by the Bank to finance municipal small scale power facilities pursuant to such act will be separately secured from the Bonds or any bonds or notes issued pursuant to the General Bond Resolution of the Bank adopted December 1, 1978 or from any bonds or notes issued by its public utilities division described above or its educational institutions division described below. To date, the Bank has taken no action pursuant to such act.

Effective February 19, 1982, the State Legislature enacted the "New Hampshire Municipal Bond Bank Educational Institutions Bond Financing Act" the stated purpose of which is to assist certain elementary or secondary educational institutions to finance the construction and improvement of their facilities. The act defines the educational institutes which the Bank may assist as any public or other nonprofit institution within the State which is approved by the State Board of Education as a public academy and empowered to provide a program of education at the elementary or secondary level to students whose tuition costs are paid by the municipalities or school districts in which the students reside. To accomplish the act's purpose, the Bank is authorized to loan money to such educational institutions through the purchase by the Bank of educational institution bonds and to issue bonds of the Bank therefor. The act requires that the Bank establish a separate educational institutions division and provides that bonds or notes issued to purchase educational institution bonds shall not be general obligations of the Bank, but shall be special obligations, payable only from the revenues pledged to their payment. Such bonds shall not in any way be a debt or liability of the State and shall not create or constitute any indebtedness, liability or obligation of the State or be or constitute a pledge of the full faith and credit of the State. Any bonds or notes issued by the Bank to finance educational institution projects will be separately secured from the Bonds, from any bonds issued pursuant to the General Bond Resolution of the Bank adopted December 1, 1978 or from any bonds or notes issued by its public utilities division or its small scale power facility division. The Bank, through its educational institutions division, has issued bonds in the amount of $2,175,000, of which $2,300,000 is currently outstanding for the financing of an educational institution project for Pinkerton Academy. Bonds issued to finance the Pinkerton Academy project are, as stated above, secured separately from the Bonds or from any bonds or notes issued under the General Bond Resolution adopted on December 1, 1978 or from any bonds or notes issued by its public utilities division or its small power facility division heretofore described.

Section 12 of the Act provides that in order to assure the continued operation and solvency of the Bank for carrying out its corporate purposes, the Chairman of the Bank shall, not later than the twentieth legislative day of each session of the General Court, submit to the Chairman of the House Appropriations Committee a written request for an appropriation for the sum, if any, required to ensure that the amount on deposit in the Reserve Fund equals the Required Debt Service Reserve. The Bank has covenanted in the Resolution to comply with this provision of the Act relating to the making and delivery by the Chairman of the Bank of such written request and to deposit all moneys received pursuant to such request in the Reserve Fund. Section 12 of the Act does not bind or obligate the

Chairman of the House Appropriations Committee to request such appropriation, nor does it bind or obligate the State legislature or the State to appropriate and pay such moneys to the Bank, but Bond Counsel to the Bank is of the opinion that such provisions of the Act are constitutional and any funds appropriated thereunder would be appropriated for a proper public purpose and may be validly applied as provided in the Resolution. All amounts paid to the Bank by the State pursuant to Section 12 of the Act shall constitute and be accounted for as advances by the State to the Bank and, subject to the rights of the Holders of any Bonds or notes of the Bank, shall be repaid to the State without interest from all available operating revenues of the Bank in excess of amounts required for the payment of obligations of the Bank, maintenance of the Required Debt Service Reserve and payment of operating expenses.

There follows in this Official Statement a brief description of the Bank together with summaries of the terms of the 1984 Series A Bonds, the Resolutions and certain provisions of the Act. All references herein to the Act and the Resolutions are qualified in their entirety by reference to such law and such documents, copies of which are available from the Bank or The First National Bank of Boston, as Financial Advisor, and all references to the 1984 Series A Bonds are qualified in their entirety by reference to the definitive forms thereof and the information with respect thereto contained in the Resolutions.

Financial and other information with respect to the Governmental Units, available to the Bank, has not been included in this Official Statement. Copies of the loan applications and supplemental material furnished to the Bank by the Governmental Units may be obtained upon request to the Bank.

THE NEW HAMPSHIRE MUNICIPAL BOND BANK

The New Hampshire Municipal Bond Bank was created by the Act as a public body corporate and politic and is constituted as an instrumentality exercising public and essential governmental functions of the State.

The Bank and its corporate existence shall continue until terminated by law, provided, however, that no such law shall take effect so long as the Bank shall have bonds, notes and other obligations outstanding, unless adequate provision has been made for the payment thereof. Upon termination of the existence of the Bank, all its rights and properties shall pass to and be vested in the State.

Purposes, Powers and Procedures of the Bank

It is the policy of the State, as declared in the Act, to foster and promote by all reasonable means the provision of adequate markets and facilities for the borrowing of money by Governmental Units for their public improvements and other municipal purposes. In furtherance of this policy, the Bank is empowered to issue its bonds to make funds available at reduced rates and on more favorable terms for borrowing by such Governmental Units through the purchase by the Bank of their Municipal Bonds.

Under current procedures adopted by the Bank, each Governmental Unit requesting the Bank to purchase its Municipal Bonds is required to complete an application form containing certain information concerning the Governmental Unit and the Municipal Bonds proposed to be purchased. The directors of the Bank, in consultation with the executive director, discuss and accept or reject each application in open meeting. In considering requests by Governmental Units, the directors rely on the information contained in the applications, as well as additional information deemed relevant. The information considered by the directors includes, among other things: the amount of debt of each Governmental Unit, the amount by which such debt will be increased by the proposed purchase of the Governmental Unit's Municipal Bonds, the state and local valuation, tax levy and taxes receivable, the largest taxpayers, the largest employers in the local area, the population trends, and the economic outlook for the community. On the basis of such review, the Bank believes that each Governmental Unit whose Municipal Bonds the Bank is purchasing with the proceeds of the 1984 Series A Bonds has the ability to service such Municipal Bonds by the levy of ad valorem taxes. The directors

of the Bank intend to follow similar procedures with respect to bonds of Governmental Units whose Municipal Bonds may be purchased with future series of Bonds issued by the Bank.

In order to fulfill such purposes, the Bank has, among others, the following powers:

(1) To fix and prescribe any form of application or procedure to be required of a Governmental Unit for the purpose of any loan or the purchase of its Municipal Bonds, and to fix the terms and conditions of any such loan or purchase and to enter into agreements with Governmental Units with respect to any such loan or purchase;

(2) In connection with any loan to a Governmental Unit, to consider the need, desirability or eligibility of such loan, the ability of such Governmental Unit to secure borrowed money from other sources and the costs thereof, and the particular public improvement or purpose to be financed by the Municipal Bonds to be purchased by the Bank;

(3) To charge for its costs and services in review or consideration of any proposed loan to a Governmental Unit or purchase of Municipal Bonds of such Governmental Unit, and to charge therefor whether or not such loan shall have been made or such Municipal Bonds shall have been purchased;

(4) To make, enter into and enforce all contracts or agreements necessary, convenient or desirable for the purposes of the Bank or pertaining to any loan to a Governmental Unit or any purchase or sale of Municipal Bonds or other investments or to the performance of its duties and execution or carrying out of any of its powers under the Act;

(5) To fix and establish any and all terms and provisions with respect to any purchase of Municipal Bonds by the Bank, including date and maturities of such Bonds, provision as to redemption or payment prior to maturity, and any and all other matters which in connection therewith are necessary, desirable or advisable in the judgment of the Bank;

(6) To purchase or hold Municipal Bonds at such prices and in such manner as the Bank shall deem advisable, and to sell Municipal Bonds acquired or held by it at such prices without relation to cost and in such manner as the Bank shall deem advisable;

(7) To acquire, hold, use and dispose of its income, revenues, funds and moneys;

(8) To borrow money and to issue its negotiable bonds or notes and to provide for and secure the payment thereof and to provide for the rights of the holders thereof, and to purchase, hold and dispose of any of its bonds or notes;

(9) To the extent permitted under its contracts with the holders of bonds or notes of the Bank, to consent to any modification with respect to rate of interest, time and payment of any installment of principal or interest, security or any other term of bond or note, contract or agreement of any kind to which the Bank is a party;

(10) To invest any funds or moneys of the Bank not then required for loan to Governmental Units and for the purchase of Municipal Bonds, in the same manner as permitted for investment of funds belonging to the State or held in the State Treasury, except as otherwise permitted or provided by the Act (however, the Resolution limits investments as hereinafter set forth);

(11) To provide advice, technical information, and to conduct research and promote financing of securities of Governmental Units;

(12) To fix and revise from time to time and charge and collect fees and charges for the use of its services or facilities; and

(13) To do all acts and things necessary, convenient or desirable to carry out the powers expressly granted or necessarily implied in the Act.

Organization and Membership of the Bank

The membership of the Bank consists of five directors: The State Treasurer and the State Bank Commissioner, who are directors *ex-officio*, and three directors appointed by the Governor and Council. The three directors appointed by the Governor and Council serve for terms of five years except

June 4, 1984

UTAH STATE WASTEWATER LOAN PROGRAM

Program Administration and Contact Person

The program is administered by the Utah Water Pollution Control Committee. For information regarding this program contact Don Ostler or Dan Filip, Bureau of Water Pollution Control, Utah State Department of Health, Salt Lake City, Utah, 84110, 533-6146.

Purpose of the Program

The Utah State Wastewater Loan Program was established by the Utah State Legislature in 1983 in recognition of federal funding shortfalls, increasing wastewater facilities needs, and prevailing high bonding interest rates currently available to communities. The program provided a total of $20 million for the Water Pollutin Control Committee to loan to communities and sewerage districts for the specific purpose of constructing needed wastewater facilities. The program provided loan repayment terms which were established by the Water Pollution Control Committee; however, according to the law, the interest rate must not be lower than (and has been equivalent to) the interest rate available to the State when the bonds were sold: 7.3%. The Water Pollution Control Committee has attempted to coordinate with other funding agencies to maximize the effectiveness of all funding resources.

Eligible Activities

Wastewater facilities construction.

Eligible Applicants

All incorporated municipalities, districts, or other political subdivisions.

Guidelines in Allocating Funds

The Policies and Guidelines for the program are attached. According to the implementing legislation and the Policies and Guidelines, the Water Pollution Control Committee has considered the need for the proposed facilities; the ability of the political subdivision to obtain funding from other sources, including private sector financing such as "privitization"; its ability to repay the loan; whether the project was cost effective; whether the project protected against present or potential health hazards; and whether the project was necessary to comply with the Federal Water Pollution Control Act or the State Water Pollution Control Act.

Program Accomplishments and Concerns

As noted previously, the Utah State Legislature established 7.3% as the minimum interest rate at which the Water Pollution Control Committee could make loans. The legislature also mandated that administrative costs, including engineering and legal reviews, be charged to the loan recipients. If costs associated with the sale of the bonds are considered to be equal for State loans and loans obtained on the regular bond market, the savings to communities which receive State loans is approximately 1 to 2 percent. In spite of the fact that these loans represent what some have termed "marginal assistance," all available money was authorized for necessary wastewater project construction. Several necessary projects, which were not proceeding prior to the program, are now actively progressing toward completion. The program has clearly provided needed inducement. All 15 loans will be closed by October 1, 1984.

Although the 7.3 percent interest loans have provided an affordable financing mechanism for several communities, there are a substantial number of communities which, because of their limited financial capability, cannot construct necessary facilities. If loans could be issued according to the communities' financial capability, many more projects could proceed.

The interval between the loan authorization and closing appears to be a function of the whether or not a bond election is held, the complexity of the bond documentation and the ability of officials to complete these necessary tasks expeditiously. The complete support of local officials throughout the period of time prior to loan closing is required. Insofar as possible, the staff has attempted to coordinate directly with local officials. We have found that consulting engineers and intergovernment agencies which act on behalf of the community may or may not have the necessary degree of support in their efforts.

Funding Availability

The State issued $20 million in general obligation bonds in 1983 to fund the loan program. On January 10, 1984 the Water Pollution Control Committee authorized loans which totally exhausted these loan funds. At present there is no provision for additional funds. Loan repayments go to a security account from which the Committee can enter into credit enhancement agreements (see program summary). However, because continued high levels of funding needs for wastewater facilities presently exist, establishment of a revolving loan fund with lower interest rates available should be seriously considered.

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June 4, 1984

UTAH STATE WASTEWATER CREDIT ENHANCEMENT PROGRAM

Program Administration and Contact Person

The program will be administered by the Utah Water Pollution Control Committee. For information regarding this program contact Don Ostler or Dan Filip, Bureau of Water Pollution Control, Utah State Department of Health, Salt Lake City, Utah 84110, 533-6146.

Purpose of the Program

The Utah State Wastewater Credit Enhancement Agreement Program was established by the Utah State Legislature in 1983 in recognition of federal funding shortfalls, increasing wastewater facilities needs, and prevailing high bonding interest rates currently available to communities. The program will permit the State of Utah to enter into agreements with communities to improve the security for or marketability of wastewater project obligations of the community. A "Security Account" was established by the implementing legislation with $2.5 million initially and with the money received from the repayment of loans made under the Utah State Wastewater Loan Program. Money from the Security Account may be used to protect obligations of political subdivisions so that more favorable interest rates on locally issued bonds or improved marketability could be achieved. On bond issues for which a credit enhancement agreement has been signed, a one to two percent savings on interest rates may be achievable. A bond insurance policy generally results in a Aaa rating for the bonds. The instruments and limits of this protection are outlined in the implementing legislation and Policies and Guidelines (attached).

Eligible Activities

Wastewater facilities construction.

Eligible Applicants

All incorporated municipalities, districts, or other political subdivisions identified in the Utah Code.

Guidelines in Allocating Funds

The need for the proposed wastewater facilities and cost effectiveness are important considerations. The capability of the public entity to meet its financial obligations for wastewater construction and other indebtedness must also be documented. The Water Pollution Control Committee may issue loans to political subdivisions for the purpose of purchasing such instruments as bond insurance, letters of credit, lines of credit, etc. At present, the Committee is issuing these loans, which are in the range of $50,000 to $80,000 at no interest, to be repaid at the end of the bonding period. Other terms may be set by the Committee. The Committee may also set aside funds, which must remain in the Security Account, for example, for one year's annual payment to help improve the marketability of the applicant's bonds.

Along with the aforementioned issues of security and need, the Committee must attempt to make the funds in the Security Account extend as far as possible. As of May 2, 1984, $14.7 million worth of facilities construction had been authorized with only $433,200 from the Security Account. This represents a leveraging ratio of 34:1! The Water Development Coordinating Council, established by the legislation which created the Credit Enhancement Program, must concur with the Water Pollution Control Committee regarding the financial prudence of proposed agreements.

Program Accomplishments and Concerns

To date, six (6) communities are proceeding with credit enhancement agreements. The program is a particularly helpful inducement to encourage construction when State Loans or EPA Construction Grants are available to provide additional assistance. In some cases credit enhancement can be an instrument to make the applicant proceed, at least, somewhat more expeditiously. The character of the financial package available has very much influenced whether projects have been able to proceed through construction.

Several communities are using or will soon be using this important program. The leveraging ratio achieved (34:1) is much higher than Legislators envisioned when the program was first developed; the predicted ratio was approximately 8:1. Although the level achieved is admirable, it reflects the fact that a limited segment of the communities with facilities needs are able to take advantage of the program. Apparently, companies which insure municipal bonds generally do not insure issues which total less than approximately $1 million. Therefore, many communities with relatively low total project costs (especially small cities and towns) are not capable of using this type of credit enhancement. Also, according to the implementing legislation payment set-asides, noted above, would need to be structured as loans by the Committee even though money would be retained in the Security Account, and therefore, these set-asides apparently represent rather little actual credit enhancement because the communities cannot accumulate interest on these funds.

Large communities which have relatively high bond ratings may not attain any significant degree of credit enhancement. Administrative costs are paid by the recipients of the assistance, and where savings to the community are less than approximately one (1) percent, these costs and any additional legal fees associated with the preparation of acceptable agreements may be a significant factor as the community considers whether to proceed with a credit enhancement agreement.

Modifications to the program are currently being considered to improve this already helpful program. Possible modifications include:

a. Allowing a portion of the Security Account to be used to initiate a revolving loan fund to provide low interest loans to small communities.

b. If the Security Account continues to be sustained through loan repayments, small grants might be issued to provide more assistance in obtaining credit enhancement.

c. Any other methods available to improve the program.

Funding Availability

In 1983 the Legislature provided $2.5 million to initiate the Credit Enhancement Program. As loans from the Utah State Wastewater Loan Program are repaid to the Security Account, additional credit enhancement agreements may be signed. However, repayment funds must first be accumulated to some degree. Additional funds may be appropriated by the Legislature in future years, if it wishes to do so. As of May 2, 1984, there was approximately $2.1 million in the Security Account, excluding interest which has accrued.

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GRANT/LOAN PROGRAMS ADMINISTERED BY
THE MISSOURI WATER POLLUTION CONTROL PROGRAM
SUMMARY
April 14, 1983

PROGRAM	PRIMARY PURPOSE	PREDICTED PROGRAM SIZE	SOURCE OF FUNDS	GRANT/LOAN SIZE	RESPONSIBLE AGENCY
EPA WASTEWATER TREATMENT CONSTRUCTION GRANTS	WATER QUALITY/ PUBLIC HEALTH	$65 MILLION EPA DOLLARS PER YEAR	FEDERAL	FY 84: 75% to 85% FY 85: 55% to 75%	CLEAN WATER COMMISSION
EPA STEP 1-2 ADVANCE	WATER QUALITY/ PUBLIC HEALTH (ENGINEERING ONLY)	$500,000 EPA DOLLARS PER YEAR	FEDERAL	0% to 13% OF CONSTRUCTION COSTS	CLEAN WATER COMMISSION
STATE MATCHING GRANTS	WATER QUALITY/ PUBLIC HEALTH	$12 MILLION STATE DOLLARS PER YEAR	WATER POLLUTION CONTROL (WPC) BONDS	FY 84: 9% to 15% FY 85: 15% to 25%	CLEAN WATER COMMISSION
STATE CONSTRUCTION GRANTS	WATER QUALITY/ PUBLIC HEALTH	$5.6 MILLION STATE DOLLARS PER YEAR	WPC BONDS	55%	CLEAN WATER COMMISSION
STATE INDUSTRIAL DEVELOPMENT GRANTS	WATER QUALITY/ ECONOMIC DEVELOPMENT	$2.4 MILLION STATE DOLLARS PER YEAR	WPC BONDS	55%	CLEAN WATER COMMISSION
STATE WATER & SEWER GRANTS	PUBLIC HEALTH/ USER CHARGE REDUCTION	$2.4 MILLION STATE DOLLARS PER YEAR	THIRD STATE BUILDING BONDS	$0 TO $600 PER CONNECTION	DEPARTMENT OF NATURAL RESOURCES
STATE STORMWATER GRANTS	PROPERTY DAMAGE REDUCTION	$3.6 MILLION STATE DOLLARS PER YEAR	THIRD STATE BUILDING BONDS	33 1/3%	CLEAN WATER COMMISSION

4/14/83

PROGRAM: EPA WASTEWATER TREATMENT CONSTRUCTION GRANTS

RESPONSIBLE AGENCY: CWC WITH EPA OVERSIGHT

PURPOSE: WATER QUALITY/PUBLIC HEALTH IMPROVEMENT

PROGRAM SIZE: PROJECTED FEDERAL GRANTS AVAILABLE PER YEAR — $65 MILLION; PROJECTED ELIGIBLE COST OF NEW PROJECTS PER YEAR — $81 MILLION; ACTIVE PROJECTS ADMINISTERED — 550; ELIGIBLE COST OF ACTIVE PROJECTS — $775 MILLION

ELIGIBLE APPLICANTS: MUNICIPALITIES; SEWER DISTRICTS; FIRST CLASS COUNTIES

ELIGIBLE PROJECTS: WASTEWATER TREATMENT FACILITIES; INTERCEPTOR SEWERS; MAJOR PUMP STATIONS

APPLICATION PROCESS: APPLICATIONS SOLICITED FROM PROJECTS ON PRIORITY LIST

PROJECT PRIORITIES: CWC ESTABLISHED PRIORITY SYSTEM CONTAINS;

1) NUMERICAL RATING SYSTEM,
2) PROJECT RANKING.
3) FUNDABLE, CONTINGENCY AND PLANNING PROJECT LISTS, AND
4) RESERVE FUNDS

RESERVE	SIZE	PURPOSE
205(g)	0% to 4%	GRANTED TO STATE TO MANAGE PROGRAM
205(j)	1%	GRANTED TO STATE FOR PLANNING
INNOVATIVE/ ALTERNATIVE (I/A)	4%	INCREASE GRANTS UP TO 85% FOR I/A FACILITIES
SMALL COMMUNITY ALTERNATIVE (SCA)	4%	75% GRANTS TO SMALL COMMUNITIES BUILDING ALTERNATIVE FACILITIES
GRANT INCREASE	NO RESTRICTIONS	AWARD NEEDED GRANT INCREASES
UNSEWERED COMMUNITY	0% to 2%	GRANTS FOR UNSEWERED COMMUNITIES
STEP 1-2 ADVANCE	0% to 10%	LOANS FOR ENGINEERING WORK

GRANT AMOUNT: UNTIL OCTOBER 1, 1984; 75% ON CONVENTIONAL FACILITIES, AND 75% to 85% ON I/A FACILITIES. AFTER SEPTEMBER 30, 1984; 55% ON CONVENTIONAL FACILITIES, AND 75% ON I/A FACILITIES.

RULES AND REGULATIONS: FEDERAL REGULATIONS — 40 CFR PART 35 AND PART 33; STATE GUIDELINES CWC POLICIES.

CONTACT: STEVE DYER OR CLINT BISHOP AT 314-751-3241

4/14/83

PROGRAM: STATE CONSTRUCTION GRANTS

RESPONSIBLE AGENCY: CWC

PURPOSE: WATER QUALITY/PUBLIC HEALTH IMPROVEMENTS

PROGRAM SIZE: PROJECTED STATE GRANTS AVAILABLE PER YEAR — $5.6 MILLION; PROJECTED ELIGIBLE COST OF NEW PROJECTS PER YEAR — $10.2 MILLION; ACTIVE PROJECTS ADMINISTERED — 0 (NEW PROGRAM)

ELIGIBLE APPLICANTS: MUNICIPALITIES; SEWER DISTRICTS; FIRST CLASS COUNTIES

ELIGIBLE PROJECTS: WASTEWATER TREATMENT FACILITIES; INTERCEPTOR SEWERS; MAJOR PUMP STATIONS

APPLICATION PROCESS: ANNUAL JULY 1 APPLICATION DEADLINE

PROJECT PRIORITIES: USES SAME RANKING SYSTEM AS THE EPA PROGRAM

GRANT AMOUNT: 55%

RULES AND REGULATIONS: STATE REGULATIONS — 10 CSR 20-4.021

CONTACT: TERRY TIMMONS OR DOUG GARRETT AT 314-751-3241

PROGRAM: STATE MATCHING GRANTS (MATCHES GRANTS AWARDED UNDER EPA'S WASTEWATER TREATMENT CONSTRUCTION GRANTS PROGRAM)

RESPONSIBLE AGENCY: CWC

PURPOSE: WATER QUALITY/PUBLIC HEALTH IMPROVEMENT

PROGRAM SIZE: PROJECTED STATE GRANTS PER YEAR — $12 MILLION; PROJECTED ELIGIBLE COST OF NEW PROJECTS PER YEAR — $81 MILLION; ACTIVE PROJECTS ADMINISTERED — 550, ELIGIBLE COST OF ACTIVE PROJECTS — $775 MILLION

ELIGIBLE APPLICANTS: MUNICIPALITIES; SEWER DISTRICTS; FIRST CLASS COUNTIES

ELIGIBLE PROJECTS: WASTEWATER TREATMENT FACILITIES; INTERCEPTOR SEWERS; MAJOR PUMP STATIONS

APPLICATION PROCESS: STATE APPLICATION MADE AT TIME OF FEDERAL APPLICATION FOR EPA CONSTRUCTION GRANTS

PROJECT PRIORITIES: CWC ESTABLISHED PRIORITY SYSTEM (SAME AS FOR EPA CONSTURCTION GRANTS)

GRANT AMOUNT: UNTIL OCTOBER 1, 1984; 15% ON CONVENTIONAL FACILITIES; 9% to 15% ON I/A FACILITIES. AFTER SEPTEMBER 30, 1984; 25% ON CONVENTIONAL FACILITIES; 15% to 25% ON I/A FACILITIES.

RULES AND REGULATIONS: STATE REGULATIONS 10 CSR 20-4.010

CONTACT: STEVE DYER OR CLINT BISHOP AT 314-751-3241

4/14/84

PROGRAM: STATE INDUSTRIAL DEVELOPMENT GRANTS

RESPONSIBLE AGENCY: CWC

PURPOSE: WATER QUALITY/ECONOMIC DEVELOPMENT

PROGRAM SIZE: PROJECTED STATE GRANTS AVAILABLE PER YEAR — $2.4 MILLION; PROJECTED ELIGIBLE COST OF NEW PROJECTS PER YEAR — $4.4 MILLION; ACTIVE PROJECTS ADMINISTERED — 0 (NEW PROGRAM)

ELIGIBLE APPLICANTS: MUNICIPALITIES; SEWER DISTRICTS; FIRST CLASS COUNTIES

ELIGIBLE PROJECTS: PUBLICLY-OWNED WASTEWATER TREATMENT FACILITIES; INTERCEPTOR SEWERS; MAJOR PUMP STATIONS

APPLICATION PROCESS: APPLICATIONS SUBMITTED TO DNR (NO ESTABLISHED DEADLINES)

PROJECT PRIORITIES: PRIORITIES ESTABLISHED BY DNR IN CONSULTATION WITH CARL

GRANT AMOUNT: 55%

RULES AND REGULATIONS: STATE REGULATIONS — 10CSR 20-4.022

CONTACT: TERRY TIMMONS OR DOUG GARRETT AT 314-751-3241

4/14/83

PROGRAM: STATE WATER AND SEWER GRANTS

RESPONSIBLE AGENCY: DEPARTMENT OF NATURAL RESOURCES

PURPOSE: PUBLIC HEALTH/REDUCE USER CHARGES TO A "REASONABLE" LEVEL

PROGRAM SIZE: PROJECTED STATE GRANTS PER YEAR — $2.4 MILLION; PROJECTED ELIGIBLE COST OF NEW PROJECTS PER YEAR — $10 MILLION; ACTIVE PROJECTS ADMINISTERED — 60; ELIGIBLE COST OF ACTIVE PROJECTS — $25 MILLION

ELIGIBLE APPLICANTS: MUNICIPALITIES, SEWER DISTRICTS, AND WATER DISTRICTS IN RURAL AREAS

ELIGIBLE PROJECTS: WATER TREATMENT AND DISTRIBUTION SYSTEMS; WASTEWATER COLLECTION SEWERS

APPLICATION PROCESS: APPLICATIONS SUBMITTED TO DNR (NO ESTABLISHED DEADLINES)

PROJECT PRIORITIES: A) WATER PROJECTS — PRIORITIES ESTABLISHED BY THE PUBLIC DRINKING WATER PROGRAM

B) WASTEWATER PROJECTS — PRIORITIES ESTABLISHED BY THE WATER POLLUTION CONTROL PROGRAM

GRANT AMOUNT: $0 TO $600 PER CONNECTION. ACTUAL GRANTS BASED ON NEEDS TO REDUCE USER CHARGES TO "REASONABLE" LEVELS. GRANTS SHALL NOT EXCEED $600 PER CONNECTION OR 50%, WHICHEVER IS LEAST.

RULES AND REGULATIONS: STATE REGULATIONS - 10 CSR 60-13.010
REVISIONS PROPOSED AS: 10 CSR 60-13.010 AND 10 CSR 20-4.030

CONTACT: MARY CLARK OR RON REDDEN AT 314-751-3241

4/14/83

PROGRAM: STATE STORMWATER GRANTS

RESPONSIBLE AGENCY: CWC

PURPOSE: REDUCE PROPERTY DAMAGE CAUSED BY FLOODING

PROGRAM SIZE: PROJECTED STATE GRANTS PER YEAR — $3.6 MILLION; PROJECTED ELIGIBLE COST OF NEW PROJECTS PER YEAR — $10.0 MILLION; ACTIVE PROJECTS ADMINISTERED — 13; ELIGIBLE COST OF ACTIVE PROJECTS — $6,600,000

ELIGIBLE APPLICANTS: LOCAL GOVERNMENTS IN ST. LOUIS CITY AND COUNTY AND JACKSON COUNTY

ELIGIBLE PROJECTS: STORMWATER CONTROL FACILITIES

APPLICATION PROCESS: A) IN ST. LOUIS CITY AND COUNTY, APPLICATIONS ARE SUBMITTED TO THE METROPOLITAN SEWER DISTRICT (MSD) BY OCTOBER 1.

B) IN JACKSON COUNTY, APPLICATIONS ARE SUBMITTED TO THE JACKSON COUNTY STORMWATER COORDINATING COMMITTEE BY OCTOBER 1.

PROJECT PRIORITIES: A) IN ST. LOUIS CITY AND COUNTY, PRIORITIES ARE PROPOSED BY MSD AND REVIEWED BY DNR.

B) IN JACKSON COUNTY, PRIORITIES ARE PROPOSED BY THE JACKSON COUNTY STORMWATER COORDINATING COMMITTEE AND REVIEWED BY THE CLEAN WATER COMMISSION.

GRANT AMOUNT: 33 1/3%

RULES AND REGULATIONS: ST. LOUIS CITY AND COUNTY PROGRAM — MEMORANDUM OF AGREEMENT BETWEEN DNR AND MSD.

JACKSON COUNTY PROGRAM — CWC GUIDELINES

CONTACT: ST. LOUIS COUNTY AND CITY — STEVE TOWNLEY AT 314-751-3241

JACKSON COUNTY — MARY CLARK AT 314-751-3241

TENNESSEE DEPARTMENT OF HEALTH AND ENVIRONMENT
Bureau of Environment
T.E.R.R.A. BUILDING
150 NINTH AVENUE, NORTH
NASHVILLE, TENNESSEE 37203

April 25, 1984

Ms. Robbi Savage, Executive Director
ASIWPCA
Hall of the States, Suite 330
444 North Capitol Street, NW
Washington, D. C. 20001

Dear Ms. Savage:

Enclosed is the information you requested in your letter of April 17, 1984.

I regret not answering sooner, but I did not receive your letter until April 19, and I was out of the office on the 20th, 23rd, and 24th.

If you need further information, please advise.

Sincerely yours,

James C. Ault, Director
Division of Construction Grants and Loans

JCA/jw 3/17

RECEIVED
MAY 1 1984

An Approach to Alternative Financing
State of Tennessee

As a part of Governor Alexander's Clean Water Initiative (see brochure entitled Select Committee on Clean Water) authorizing legislation and budget items have been introduced in the 1984 General Assembly that would provide a $14 million state grant program to assist in the construction of wastewater facilities. The program as proposed would be administered similar to the EPA program using the same priority list. The State appropriation would be added to the Federal Allotment to determine which projects would be funded in a given year.

The State loan program is also being modified to assist cities with a relatively small state shared tax base. Currently the city's loan limit is determined by the amount of state shared taxes i.e. sales tax, business tax etc. The annual repayment schedule cannot exceed the estimated State shared taxes. State general obligation bonds are sold as the source of the loan funds and the State shared tax used as surety helps the bond rating. The legislature is being asked to create a reserve fund to substitute as surety for the excess of a loan over the state shared tax amount for a city that could not obtain a loan otherwise.

The above measures were taken to accelerate the construction of needed wastewater facilities and to assist cities in meeting their financial need. Most of the cities in Tennessee needing wastewater facilities are relatively small and have severe financial constraints.

The program was sold by getting State leaders involved in the decision making process. Members of the Select Committee are listed in the accompanying brochure.

The legislation has passed the appropriate committees in both houses and a vote is expected soon. Favorable consideration is anticipated.

It is anticipated that next year's grants will be made during the fourth quarter of the State fiscal year. Regulations must be promulgated before official action can be taken. It is anticipated that the regulations will be essentially the same as the Federal Regulations so that a city can qualify for either source of money.

A copy of the grant Bill is enclosed. A copy of the Bill Summary for the loan program amendment is also enclosed.

JCA/jw 3/17

CASE HISTORY
STATE GRANTS PROGRAM FOR CONSTRUCTION OF SEWAGE FACILITIES IN PENNSYLVANIA UNDER ACT 443

On January 19, 1968, Governor Shafer signed into law "The Land and Water Conservation and Reclamation Act" known as Act 443 (copy attached) which authorized the sale of a $500 million bond issue of which $100 million was allocated to provide financial assistance to municipalities and municipal authories in the Commonwealth for construction, reconstruction and improvement of sewage treatment plants and facilities necessary for the protection of the public health and to accelerate restoration and protection of water quality. The primary objective of this program was to provide state funds to supplement and match Federal grant funds appropriated under the Federal Water Pollution Control Act (PL 660). The state grant program was used to supplement the Federal grant program rather than provide separate grants because of the leveraging power that the State funds had and because at the time, few communities in Pennsylvania could afford to construct sewerage facilities with the Federal grant alone. Most of the funds allotted under Act 443 were expended between 1968 and 1972. During this period the program was administered in accordance with the attached regulations entitled Article 500 "Sewage Facility Construction Grants", and funds were used to supplement/match PL 84-660 funds.

When the Federal Water Pollution Control Act Admendments were passed in 1972 (PL 92-500) and the Federal share of eligible sewerage treatment plant and interceptor cost was increased to 75% and collector sewers were made eligible for grants, the State Act 443 grant program was modified. Beginning in 1973, funds remaining in the State grant assistance program were used to provide the following:

1. A 75% design grant to alleviate an outstanding indebtedness incurred by municipalities who completed design work and applied for a Federal construction grant but, because of funding limitations, had not received a grant for construction of those designed facilities.

2. A 5% grant to supplement the 75% Federal construction grant for municipalities who suffered unusual financial hardship. In evaluating the extent of financial hardship, the State considered the ratio of the median family income in the municipality or municipalities to be initially served by the project to the State median family income, the ratio of the local share of the project cost to the market value of real estate in the municipality or municipalities to be initially served and the equivalent annual sewer rental to be charged.

Only about $750,000 remains available under this program. It will continue to be used until exhausted to provide 5% supplemental grants to municipalities that meet the financial hardship criteria. Since its inception in 1968, about 228 municipalities received supplemental sewage construction grants and another 62 municipalities received design reimbursement grants under this program.

SANITARY WATER BOARD
RULES AND REGULATIONS
COMMONWEALTH OF PENNSYLVANIA

Article 500

Sewage Facility Construction Grants

(Adopted February 21, 1968)*

Section 1. Scope of this Article

The regulations in this article are adopted to implement the awarding of sewage facility construction grants under the provisions of "The Land and Water Conservation and Reclamation Act" (hereinafter referred to as "State grants") and under the provisions of the "Federal Water Pollution Control Act" (hereinafter referred to as "Federal grants").

Section 2. Responsibility of the Department

The Department will review all applications for State and Federal grants and make timely reports to the Board containing recommendations for approval of grants and submit, when applicable, certifications for priorities in the awarding of grants. The recommendations of the Department shall be based on Federal and State law and these regulations.

Section 3. Applications

All applications for State and Federal grants shall be made on forms prescribed by the Department and shall contain such information as the Department may require.

* *Supersedes Article 500 (Federal Grants)*

Section 4. Eligible Projects

Grants shall be awarded only for eligible projects. Eligible projects shall be those in which:

A. Application is made for both a State and Federal grant, and

B. The application for the construction grants and the application for the Sanitary Water Board permit authorizing the construction and operation of the facility is received by March 1st prior to the beginning of the fiscal year in which the grant would be awarded, and such Sanitary Water Board permit is issued prior to the beginning of the fiscal year. If additional funds become available after the beginning of the fiscal year, the Department may supplement the list of eligible projects with projects for which applications for a construction grant were received after March 1st and which were issued permits by the Sanitary Water Board.

Section 5. Approval of Grants

The following criteria will be used in approving grants for eligible projects:

A. In any fiscal year a maximum number of eligible projects shall receive a Federal grant.

B. If, in any fiscal year, available funds are insufficient to provide, for each eligible project, a total grant of at least 30% of the estimated project costs, the Department will certify to the Board those projects which are entitled to priority pursuant to Sections 6 through 11, below.

C. The total of the State and Federal grants, for any particular project shall be not less than 30% of the estimated project costs, provided that a lesser grant may be approved for the lowest ranking of the projects entitled to priority.

D. The project costs, upon which grants shall be based, shall include preliminary planning to determine the economic and engineering feasibility of treatment works, the engineering, architectural, legal, fiscal, and economic investigations and studies, surveys, designs, plans, working drawings, specifications, procedures, and other action necessary to the construction of treatment works; and the erection, building, acquisition, alteration, remodeling, improvement, or extension of treatment works; and the inspection and supervision of the construction of treatment works.

E. (added May 21, 1969) If in any fiscal year funds are available for an eligible project which because of its size or complexity will require more than one year to construct, the Board may approve the project for funding but specify that only a portion of the grant be offered during that year and that the balance of the grant be offered during subsequent fiscal years.

Section 6. Certification for a Priority

Those eligible projects having the highest total relative needs shall be certified for priorities.

Section 7. Total Relative Needs

The total relative needs of each applicant shall be the sum of the relative needs as determined below for Water Pollution Control, Per Capita Cost and Financial Need.

Section 8. Relative Needs

Applicants' relative needs shall be established according to their relative number of points, the applicant with the lowest number of points having zero relative need and the applicant with the highest number of points having the following relative need:

Water Pollution Control	50
Per Capita Cost	10
Financial Need	40

Section 9. Water Pollution Control

(amended April 17, 1968)

The number of points for Water Pollution Control shall be based upon the extent to which the project will eliminate detrimental effects of pollution from existing discharges of sewage or prevent detrimental effects that would be caused by discharges from areas presently unsewered. The portion of the stream and the number of stream miles that are or would be affected shall be considered in determining the detrimental effect of pollution.

Detrimental Effect of Pollution	Points Based on Degree of Effect: Slight or no effect	Moderate effect	Great effect
1. Domestic Water Supply	15	20	25
2. Public Bathing	2	10	20
3. Fish & Aquatic Life	10	15	20
4. Boating, Recreation & Aesthetic Value	6	11	15
5. Industrial Water Supply	6	11	15
6. Irrigation	2	3	5
7. Stock Watering	2	3	5

Section 10. Per Capita Cost

The number of points for Per Capita Cost shall be determined by dividing the estimated cost allowable by the design equivalent population. Estimated cost allowable shall be the minimum reasonable cost necessary to provide the essential facilities of the sewage works project.

Section 11. Financial Need

The number of points for Financial Need shall be determined by the relative total taxes collected per $10,000 market value of taxable real property.

Section 12. Payment of State Grant

Payments of State grants for approved projects will be made concurrently with payments of Federal grants.

Article 500—Sewage Facility Construction Grants 500-1

Section

1. Scope of this Article 500-1
2. Responsibility of the Department 500-1
3. Applications 500-1
4. Eligible Projects 500-1
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12. Payment of State Grant 500-2

APPENDIX E

INTERNAL EPA STUDIES

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APPENDIX E

INTERNAL EPA STUDIES

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LOCAL FINANCING OF WASTEWATER FACILITIES **

I. Introduction

This paper addresses the issue of how communities finance their portion of the cost of planning, designing, building, operating and maintaining their wastewater treatment facilities.

A community's decision to construct and operate a wastewater treatment plant will directly result in their undertaking a large financial commitment. In the case of many small communities the obligation will be for their first and perhaps largest capital project. In all cases, however, the financial resources to bring a modern wastewater treatment system into operation are substantial.

In the past many non-local players have come to the aid of communities and contributed financially to the project. The most prominent of course is the Federal Government, primarily through the Environmental Protection Agency's (EPA) construction grants program. Other Federal Agencies such as FmHA, HUD, and EDA also provide funding through grants and loans. In addition, most States now offer some type of financial assistance to their municipalities and sewer authorities in order to reduce the local burden. Now with Federal support decreasing communities will have to generate larger amounts of money in order to pay for their project.

Although the term financing in this discussion refers to the process by which municipalities pay for their share of the cost to build and operate a wastewater treatment facility, in general usage, financing refers to the type of debt issued (e.g., bonds, notes) to raise the funds to pay the capital cost of the project.

II. Types of Local Costs

The nature and projected use of funds dictates the range of options open to the community. In general, communities need funds for several specific reasons:

- o local share of capital cost including
  - ineligible construction costs
  - financing the local share during construction
  - financing the cost of delay in receiving grants
- o operation, maintenance and replacement cost (O,M&R)

The local share of capital cost generally represents the single largest one-time need for funds and is typically financed through long-term borrowing such as general obligation or revenue bonds. It is this large long-term debt which has commanded the most attention in the planning of treatment facilities. Special Assessment Bonds, Industrial Development Bonds, and direct loans from the State or Federal Agencies are other long-term borrowing techniques used to finance the local share of the capital cost. Methods of repaying these debts vary considerably from property taxes levied on the users to retail sales taxes on the population in general. Unlike O,M&R, which under EPA regulations must be shared fairly among all users,* capital debt can be paid off through any legal method the municipality desires. In most cases, however, the lender or bond holder will require, through written requirements associated with the sale of bonds, that repayment of the debt must be done through some specific way such as property taxes or user charges.

Another significant cost occurs during the construction period when the project is not yet providing service and there is no income. Communities sometimes wait to issue long-term bonds until construction is complete particularly during periods of high interest rates. Construction payments to the contractor, however, are due monthly. This is further complicated by the fact that grant payments from EPA are typically on a reimbursement basis and tend to lag several months behind the payments to the contractor. Communities generally cover these costs through short-term financing methods such as Bond Anticipation Notes (BANS), Grant Anticipation Notes (GANS), private bank loans, and more recently Tax Exempt Commercial Paper (TECP).

The cost of operation, maintenance and replacement is, unlike the capital cost, continously increasing and difficult to predict. Financing of O,M&R is almost always through direct charges to the actual users on a proportional basis and, if an EPA grant is involved, the nature of these charges are subject to restrictions.

There are also "non-debt" ways for a municipality to finance a wastewater treatment facility. These include private sector arrangements through techniques such as privatization, contracting-out for services, leasing and municipal enterprises.

III. Current Local Financing Methods

A. Long-Term Debt

1. General Obligation (GO) Bonds: Until recently GO bonds have accounted for most of the long-term capital financing for wastewater treatment facilities. These are bonds sold with the repayment secured by the general taxing power of the municipality. The borrower agrees to raise taxes, usually property taxes, to any level necessary to pay off the bonds. GO bonds are usually only issued by municipalities because most utilities do not have general powers of taxation. Because they are backed by the "full faith and credit" of the borrower GO bonds usually (although not always) carry the lowest interest rates. Most municipalities have some type of State or charter imposed limit on the amount of GO debt they can issue. Thus, GO bonds are not always an available option.

*Ad valorem taxes are allowed under certain conditions, see 40 CFR 35.2140.

**Prepared by the Wastewater Facility Branch, Municipal Facilities Division, Office of Municipal Pollution Control, Environmental Protection Agency.

2. Revenue Bonds: In the past revenue bonds had not been as common as GO bonds but their use has been increasing in recent years. Revenue bonds are tax-exempt and are secured by a specific revenue source such as the revenues received from users of the sewer system. Rates are set so that principal and interest can be paid when due. If the revenues from the treatment system are inadequate the issuer is under no obligation to pay off the bonds from other sources like property taxes. Thus the security of the bonds is limited and they tend to have higher interest rates than GO bonds.

One advantage over GO bonds is that revenue bonds normally are not counted against the community's statutory debt limit and are an available option in circumstances when GO's are not.

3. Double Barrelled Bonds: These are a combination of revenue and GO bonds. Although a specific revenue source is earmarked for the repayment of these bonds they are also secured by the full faith and credit of the issuer. Thus, if revenues are not sufficient to pay off the bonds the issuer is obliged to pay the bonds through property taxes. Because they do not absorb tax revenue double barrelled bonds are not generally counted against a community's debt limit. They also tend to receive more favorable interest rates for the borrower than revenue bonds.

4. Special Assessment Bonds: These are tax-exempt bonds sold to fund projects of specific benefit to the users such as a sewer collection system and are payable solely from the proceeds of a special assessment levied against the properties of those who benefit. Generally a special district is established which includes all the users who will benefit. The bonds are secured by liens against the user's property. These bonds are usually sold locally by the municipality and redeemed by the individual property owner over a 5 to 10 year period.

5. Industrial Development Bonds (IDB): These are tax-exempt bonds issued by municipalities to construct facilities for a private business enterprise. They can be used in conjunction with sale-leaseback arrangements in which private investors will buy or build the facility with the proceeds of the bond and then lease the facility back to the municipality. Bonds are retired by payments from the private investors. This arrangement takes advantage of both the municipality's tax-exempt bond status (e.g., through use of revenue bonds) and the private sectors tax advantages (e.g., investment tax credit and accelerated depreciation). IDB have come under some attack recently in the Congress due to a history of alleged abuse - the largest user of the IDB nationwide has been McDonalds. As a result the recently enacted tax bill put a $150 per capita limit for each State on the total amount of IDB that can be issued. Many feel that with this restriction wastewater treatment construction will not be a high enough priority in most States to merit the use of IDB's.

6. State Financial Programs: States are an important source of financing for a large number of projects nationally. To date nineteen States provide loans and a total of 40 States provide loans or grants to communities for the construction of wastewater facilities. Depending on the State these loans can be used to finance both the eligible and ineligible portion of the complete wastewater system on either a short or long-term basis. There is a wide range of State activities underway which can greatly assist local governments to finance their facilities. These include State bond banks, bond assistance, interest subsidies and credit enhancement programs. These are described in detail in Meeting the Need: State Approaches in Wastewater Facilities Financing (See Reference List).

7. Other Federal Programs: Agencies with loan programs to fund wastewater collection and treatment facilities include the Farmer's Home Administration (FmHA), the Economic Development Administration (EDA), and the Department of Housing and Urban Development (HUD).

The FmHA is by far the dominant actor in providing loan assistance. The FmHA will make low interest loans for up to 40 years to communities of less than 10,000 population for wastewater treatment facilities. The FmHA budget for loans in FY '84 is a approximately $374 million. FmHA loans can be used in conjunction with EPA grants. There are, however, States which base the amount of state assistance on the non-Federal share. In these cases adding a FmHA loan to an EPA grant may only result in the proportional reduction in the State contribution. The other federal programs are quite small and do not promise to assist many communities to finance wastewater facilities.

8. Local Issues: Small communities frequently do not require enough funds to justify the expense of getting a bond rating and issuing bonds in the municipal bond market. Often they may sell bonds locally to community banks, local financial institutions or groups of private investors that have a stake in the community and are willing to invest in an important infrastructure project such as a wastewater treatment system. The interest rates, maturity and other terms are privately negotiated and may result in better rates than would otherwise be obtained in the open market. These may be set up in a form similar to GO, revenue or special assessment bonds.

9. Directly Marketed Small Denomination Bonds: These "mini bonds" are usually small denomination issues ($100 to $1000) which are sold directly to individual private investors. No bond underwriters (brokers who actually market the bonds to the public) are involved so that the issuance cost to the municipality is kept low. Additional benefits claimed by advocates include the extention of tax-exempt bond opportunities to small investors, channeling "civic impulses" by allowing community residents to invest in job creation and economic development, and savings from not getting a bond rating. Problems associated with these small bonds are the lack of

a resale or secondary market, difficulty in setting interest rates in the absence of free market bidding and concern about the community's ability to sell the large number of bonds necessary to finance major projects.

B. Short Term Debt

1. Bond Anticipation Notes (BANS): BANS are short-term (generally less than 3 years) bonds which communities sell to cover capital cost during and sometimes immediately after the construction period. They are secured with a promise to pay from the proceeds of the long-term bonds which will eventually be sold to finance the facilities. BANS will often receive lower interest rates than long-term bonds and are sometimes used as a way to delay the sale of long-term bonds in the hope that long-term interest rates will go down. Communities will continue to "roll over" (i.e., redeem one set of BANS with the proceeds of another set) their short term debt for up to several years (subject to State laws) until the long-term rates are more favorable. The transaction costs of "rolling over" these short term notes can, however, be significant. The interest and principal of the BANS are eventually capitalized over the term of the long-term bond.

2. Grant Anticipation Notes (GANS): Cash flow requirements such as contractor payments during construction often occur several months before EPA and other grant funds are received by the grantee. GANS are used during construction to meet these cash flow needs. They are tax-exempt notes secured by the grant itself. Generally, an estimate of the cash flow requirements is made and the total amount needed is borrowed all at once. This money is then invested in an interest paying account. If managed successfully this process of investing the unused portion of GANS proceeds can minimize or eliminate the interest cost associated with borrowing. GANS are issued for three years or less to meet the IRS requirement allowing arbitrage.

3. Tax-Exempt Commercial Paper (TECP): TECP's are very short (up to 270 days) tax-exempt, unsecured notes which can be used for the same purposes as GANS and BANS. They are very flexible in theory and can be issued in any amount and for any term which is agreeable to the borrowing municipality and the lendor or investor. TECP's generally carry lower interest rates than BANS and GANS. Due to high issuance costs TECP are not competitive with BANS and GANS unless the commercial paper is used to cover recurring cash requirements of $20 to 25 million.

4. Bank Loans: Perhaps the most common way communities, particularly small communities, manage cash flow during construction is through privately negotiated bank loans. This is usually possible with the bank that handles the municipality's or utility's banking services.

C. Non Debt Financing

Financing methods which do not put the municipality directly into debt have recently attracted much attention. These methods use sophisticated arrangements with private sector organizations where the municipality's tax-exempt status is combined with the private sector's access to income tax deductions such as the investment tax credit and accelerated depreciation. Recent changes in the tax code have affected these techniques. These non-debt methods include various forms of privatization and leasing, contracting out for services, municipal enterprises and "pay as you go".

1. Privatization: Although not truly a form of financing, privatization is a potential method for communities to provide wastewater treatment without borrowing funds to build and operate the facilities. Differing forms of privatization have been discussed widely but the basic concept is for a private concern to construct and own a wastewater facility and then either lease it back to the community, operate the facility under a service contract or provide wastewater services as a commercial enterprise.

The private firm may then enjoy the tax benefits available such as the investment tax credit and depreciation. In some cases the community will sell industrial development bonds and lend the proceeds to a private firm. The resulting tax savings coupled with the presumed increased private sector operating efficiencies will then result in lower user costs. Privatization advocates also claim they can build the facilities faster and at a lower cost because they do not have to meet many Federal requirements. Current regulations and Executive Orders do not allow facilities funded with Federal grants to be converted to private ownership without approval of the grantor agency and pay back of Federal contribution. This has dampened the implementation of privatization nationally.

2. Contracting out for services: Somewhat akin to privatization, contracting out for services is primarily used by communities to acquire the services of a private firm to operate the treatment facilities. The purported benefits are: cheaper labor, better management, less buracracy and the ability to replace the contractor if the service is not acceptable.

3. Leasing: The term leasing covers several methods in which a community can collect and treat its wastewater without the issuance of debt. Two major types of leasing arrangements used in the wastewater treatment field are lease-purchase agreements and the straight operating leases.

In the lease-purchase agreement the facility or components of the facility are financed by a private owner or a third party investor. The facility is then constructed according to the specification of the municipality. The private owner then leases the wastewater treatment plant back to the municipality at an amount usually less than the debt service which would have resulted from a traditional publicly financed system. At the end of the lease the municipality can buy the facility back from the private owner. Examples of communities who have used lease-purchase are Philadelphia, Pennsylvania; Neola, Iowa and the East Bay Municipal Utility District in Oakland California.

The straight operating lease is structually more simple - usually a straight forward renting of facilities or equipment. This type of lease can be found virtually all over the country.

This decreased cost associated with both of these arrangements is due to the private sector tax savings as well as the elimination of the large issuance cost associated with the sale of public bonds. This makes leasing attractive to those communities that are fast approaching their debt limits or that have public referendum requirements for issuing debt. Both leasing and privatization techniques are very much dependent on State enabling legislation and the federal tax code. Recent modifications to the the tax code which have affected leasing are discussed below in the Local Financing Trends.

4. Municipal Enterprises: As a way to offset O,M&R cost, municipalities have added to their operation revenue-generating enterprises such as the sale of sewerage treatment service to other municipalities, charging fees for treating septage from private haulers, selling fertilizer, methane, steam, recirculated cooling water, and crops from land treatment operations. These enterprises generally are not enough to cover all O,M&R cost but can be substantial enough to affect rates.

5. Pay As You Go: In certain cases municipalities are able to finance all or portion of their system through cash reserves or annual revenues. This method saves financing cost and does not count against their debt ceiling or debt limit. It does, however, tie up cash which could be leveraged to pay for more local capital needs if these projects were financed through borrowing.

IV. Local Financing Trends

The purpose of this discussion of local financing is to investigate potential methods for assisting local communities with financing treatment facilities. This section, therefore, is limited to those trends which have some promise of positive outcome with Federal encouragement or intervention or those financing trends which will effect the success of municipal participation in meeting the goals of the Clean Water Act. In general, however, it must be stated at the outset that although many new, creative and potentially promising developments are taking place in municipal finance there are very few actions EPA can take to encourage them. They are almost exclusively dependent on private sector acting in the context of a national economy and an ever changing tax code.

A. General Obligation vs. Revenue Bonds Trend: Based on a report by the First National Bank of Boston the use of revenue bonds has increased dramatically compared to GO bonds in the last 20 years. Whereas the ratio of revenue debt to GO debt in 1966 was approximately 0.67, in 1982 it had to grown to 2.8. The study also reported that 60% of the currently outstanding debt for sewer systems is in the form of revenue bonds. This trend reflects efforts by municipal borrowers to get out from under tax supported GO debt (which has been severly restricted by limits on borrowing and taxing such as proposition 13 in California, proposition 2 1/2 in Massachusetts and others).

From the standpoint of the construction grants program this may be a positive development. Revenue bonds are usually associated with the use of an enterprise fund - a management/accounting technique that allows for better control of revenue and costs. This in turn can lead to better operation of the facilities. Revenue bonds also tend to place the financial burden more directly on the users of the service. Revenue bonds do, however, tend to sell at higher interest rates than GO bonds.

B. Increased use of Short-Term Financing: Although most wastewater treatment facilities are eventually financed with long-term debt, short-term debt instruments such as BANS, GANS, bank loans and TECP are currently being used more frequently. From 1978 to 1982 the use of short-term debt has increased 18.2%. This movement has resulted from the combination of high interest rates for long-term debt in the past few years and the continued uncertainty about future interest rates. Additional market related factors, such as the growth in the very liquid tax-exempt money market funds which are in competition with tax-exempt bonds, have increased demand for short-term tax-exempt issues.

As discussed earlier, short-term financing is often used by grantees during and immediately after the construction period. For larger communities financing during this period has not been a problem. Through the reinvestment of the unused portion of the proceeds of the tax-exempt short-term issues, many large communities are able to eliminate short-term interest cost. This procedure is a form of arbitrage. For smaller communities the cost of managing the investments may be too high for arbitrage to totally eliminate short-term financing costs. To the extent that short-term debt is used to delay permanent financing until lower long-term interest rates are available, the trend can be a positive response to an uncertain and fluctuating market.

For communities where delays in receiving grant payments are a problem, EPA should have a provision allowing payments earlier or for advancing a portion of the grant at the beginning of construction.

C. Impact of State Debt Limits: Taxpayer movements in the past several years have resulted in direct and indirect restrictions on the ability of local governments to issue general obligation debt. These and other State borrowing (or taxing) limits typically have had their greatest impact on those communities that use property or other general taxes to repay the long-term bond issues to build treatment facilities. Many communities have switched to revenue bonds which rely on user charges and do not generally fall under debt limitations.

For communities whose sewer service has been paid for out of the general fund, switching to a user charge support system presents real problems. This can happen, for example, in cases where tax-supported systems has generated low user rates because many non-user taxpayers are financially contributing to the system. A switch to a proportional user charge to cover capital cost will raise the cost to all or some of the users and can be highly unpopular.

In general, it is better to have capital cost funded through user charges, as is often the case for revenue bonds, rather than a property or sales tax as with GO bonds.

D. Privatization and Leasing: The area of privatization is discussed in greater detail in other parts of this paper but it is mentioned here because there has been much discussion recently about it. The Executive Branch's position that grant funded projects cannot be used in privatization schemes means that this technique will have little impact on the grants program. Thus, to the extent that it proves to be a viable technique privatization can be used to develop wastewater facilities in non-grant funded situations.

E. Increased State Role: The State role in financing wastewater treatment decreased in the early part of the last decade when the EPA's construction grants program took up the position as the major funder publicly-owned treatment works. As the Federal role begins to diminish, States are slowly starting to pick up the slack. The new State activity is characterized by more diverse and creative methods of helping local governments to finance facilities. Although a thorough discussion of the future role States may play is presented in Meeting the Need: State Approaches in Wastewater Financing a few items merit special mention.

Since O,M&R tends to be such a major component of user cost, efforts at its reduction will produce significant local benefits. Pennsylvania and New York have O,M&R assistance programs. Any movement in this direction by other States will be positive. A one dollar reduction in the annual O,M&R cost is in general equivalent to a $10 reduction in capital cost in terms of burden on individual users. EPA encouragement of States to consider O,M&R assistance, where needed, should be undertaken.

A second area of direct importance is State bond assistance to municipalities. This can take many forms with "State Bond Banks" under consideration in many States. This assistance can include credit enhancement, bond guarantees, provision of technical assistance, use of State bond proceeds to lend money to municipalities (with or without subsidies) and State purchase and resale of local issues.

Because of their proximity, resources, credit ratings and influence, most States are in a position to be an important factor in helping local government to obtain financing for wastewater treatment facilities.

F. Creative Financing: In their book Creative Capital Financing Peterson and Hough described a series of techniques which can aid a municipality to raise funds. These include:

- Put Options Securities: As part of the structure of the bond, the municipality agrees to buy back the bond at specific points in time prior to full maturity. Investors then have the option to "cash in" early if they need the funds or if superior outside investment opportunities are presented. This makes the bond more liquid and thus more attractive to investors. At the same time, it adds additional risk to the issuer who may be required to come up with large amounts of cash to redeem bonds if the investors decide to cash them in. To cover this potentially large cash demand issuers usually obtain a bank line of credit.

- Original Issue Discount Bonds and Zero Coupon Bonds: These long-term bonds offer the investor a return in the form of accretion of bond value instead of high interest rates. These are sold at a discount (less than stated value) but redeemed at full value. The zero coupon bond (i.e., zero interest) is the extreme case of original issue discount bonds in that they are discounted so heavily that they have no coupon rate at all. These type of bonds are advantageous to investors because they tend to insure a fix rate of return over the life of the bond and shift the reinvestment risk from the investor to the issuer. Their increasing use is related to the relative increase in individual over institutional investors in the municipal market.

- External Credit Support: In an effort to make their issues more attractive to the bond market, municipalities have been turning to various methods to bolster their credit. By doing so, the issuers or third parties are accepting the credit risk normally taken by the investors. These techniques include municipal bond insurance (a traditional approach now on the increase), bank letters of credit, bank lines of credit and State guarantees. These credit support techniques all reduce the investors risk that the borrower will not make timely payments.

Credit supports are one of the few methods in which the State or Federal government can help local governments to finance their facilities without significant State or Federal expenditures.

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Meeting the Need: State Approaches to Wastewater Facilities Financing

Wastewater Facility Management Branch, Municipal Facilities Division
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Environmental Protection Agency

November 1984

Need for Expanded State Role

After October 1984, most communities participating in the construction grants program will receive less money from the Environmental Protection Agency (EPA). Unless States provide additional financial assistance, local communities may face greater financial difficulties in meeting their water quality objectives. This paper briefly describes the efforts of eight States to meet this need as well as outlines more generally a variety of possible approaches States can take to reduce the cost of financing wastewater treatment plants.

Several provisions of the Clean Water Act Amendments which become effective in October 1984 will have financial impacts on municipalities. These changes include the following:

- the Federal share will be reduced to 55% (75% for innovative/alternative technologies) for all new grants
- project eligibilities will be restricted to treatment facilities, interceptor sewers and correction of inflow/infiltration problems (governor may fund other projects through 20% discretionary allocation)
- reserve capacity will no longer be funded

Construction grant funding is authorized through 1985; grant funding after FY 1985 is uncertain. (Funds authorized in 1985 may be spent through September 30, 1986.)

Despite reduced funds, EPA's Municipal Compliance Policy requires communities to comply with the Clean Water Act by July 1988 wherever possible. Without financial assistance, some communities may have difficulty achieving this objective. Many small communities are confronted with higher per capita project costs, poor credit ratings and high interest rates, fewer revenue sources and lower personal incomes than larger cities. Small communities in particular need more assistance in arranging project financing.

Given the reduced Federal role and the limited financial capability of some communities, many States are becoming aware of the need for an expanded State role in construction of wastewater treatment systems. This report summarizes current State financing programs, describes selected State programs recently implemented or under consideration and outlines some basic options for increasing State financing assistance.

What Have States Been Doing?

Concurrent with the EPA construction grants program, many States have provided supplemental grants or loans to communities. Please refer to the adjacent box for a summary of State programs as of February 1984. These programs are generally funded by general obligation bond proceeds or current revenues (i.e., appropriation from State income tax, sales tax or other revenues). A few States utilize other revenue sources such as water use surcharge, excise taxes, inheritance taxes, and mineral severance taxes.

State programs vary widely in funding levels, size of grants and/or loans, project selection criteria and project eligibility. Many States base their program fairly closely on the Federal construction grants program. Some States, however, provide assistance to communities not receiving Federal grants or partially fund system components not eligible for Federal assistance. A few States select grantees and determine amount of award based on local financial capability (e.g., estimated annual user charges, median household income). To spread out available Federal funds to a greater number

of communities, some States have already reduced the Federal share (see box) or set maximum dollar limits for State and Federal participation. In the past, grant assistance has been the predominant State approach. In order to assist more communities, however, there is a trend toward either replacing or supplementing State grant programs with loan or loan guarantee programs.

Summary of Current State Programs

- The following 28 States provide matching grants for communities receiving EPA grants: AK., AR., CA., CT., DE., FL., HI., ID., IN., IA., ME., MD., MA., MI., MN., MO., NE., NH., NJ., NM., NY., NC., PA., RI., VT., WA., WV., WY.

- The following 22 States provide grants for communities not receiving EPA assistance: AK., CA., CO., CT., FL., GA., HI., ID., IL., ME., MD., MA., MN., MO., NM., NC., TN., SC., VT., WA., WI., WY.

- The following 19 States provide loans for facility construction: AR., CA., FL., GA., HI., ID., MD., MS., MO., NJ., NV., OH., OR., TN., TX., UT., WA., WV., WY.

- A total of 40 States provide grant or loan assistance to communities with or without Federal funding.

- Six States provide only loans.

- The following 5 States have reduced the Federal share in advance of the 10/1/84 requirement: CO., FL., KS., NJ., TN.

- Bond banks are currently operated by AK., ME., MT., NH., NV., and VT. State assistance in marketing bond issues is provided in AK., MD., and NC.

- Special studies of new financing programs have been undertaken in AZ., CT., GA., IA., ME., MN., MO., MT., NJ., PA., TN., VA., and WV.

RECENT DEVELOPMENTS IN STATE FINANCING

Although a few changes in the 1981 Amendments were effective immediately, the effective date of the potentially more far reaching changes was deferred until October 1, 1984. Several States have used this interim period to consider, and in some cases implement, new State policies, procedures and funding programs. Described below are highlights of some of the more innovative State programs to assist communities in financing wastewater treatment systems. The programs are in various stages of development. A limited number of activities have already been implemented. Some States are awaiting legislative authorization or appropriations in order to initiate programs. Other programs are still being developed.

This report is a status report as of spring 1984. The efforts described below may provide useful guides and contacts for other States to use in considering new financing programs.

Missouri: An Activist Approach

Since enactment of the Clean Water Act of 1981 the State of Missouri Department of Natural Resources (DNR) has explored a variety of alternative financing options.

Accomplishments include:

- establishment of a grant anticipation bond program, which provides low or no interest short term construction loans to grantees. Since the State coordinates the program on behalf of many communities, economies of scale in debt issuance are obtained. Since potential contractor cashflow problems are alleviated, bid costs can be somewhat reduced. The program eliminates the need for expensive interim financing. Bonds totalling almost $70 million have been issued by the Missouri Environmental Improvement and Energy Resources Authority. The program is administered by a major bank.

- recognizing that many small communities have inadequate financial management systems, the DNR is currently initiating a circuit rider administration assistance effort designed to improve municipal utility accounting practices. The program has been undertaken by a regional planning commission through a grant from EPA. The DNR will explore ways to expand the program Statewide.
- in conjunction with the DNR, the State Water Pollution Control Association has appointed an alternative finance subcommittee to explore options for assisting communities and districts that are not eligible for the EPA construction grant program.
- in order to assist in reducing O,M&R costs, the DNR is attempting to foster development of a municipal wastewater purchasing pool which could provide economies of scale in buying materials. The DNR has approached several existing purchasing pools and regional planning agencies about instituting such a program. The DNR has provided potential pool managers with a quasi market analysis and outline of potential services for the activity.
- EPA Region VII provided funds for development of a financial alternatives user guide and computer analysis. The work by the East-West Gateway Coordinating Council (the regional planning council in the St. Louis area) will assist local capital planning, financial capability analysis and determination of the need for cost reduction in construction and O,M&R costs.
- The DNR will evaluate options for bond pools in 1984.

For further information, contact:

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Jefferson City, MO 65102
(314) 751-3241

Utah: Leveraging Funds through Credit Enhancement and Loans

The Utah State Wastewater Credit Enhancement Program was established by the State legislature in 1983 in recognition of the increased local share resulting from reductions in Federal grants. The program provides for State backup of local bonds which enables local communities to sell their bonds more readily and at more attractive rates - generally from one to two percent savings on interest rates. The State's credit guarantee generally results in an Aaa rating for the bonds.

Participation is open to any Utah municipality or wastewater management authority. Applications are reviewed by the Utah Water Pollution Control Committee based upon the need for the facilities, the cost-effectiveness of the project and the applicant's financial capability. Applications must also be approved by the Utah Water Development Coordinating Council which was established by the Credit Enhancement Program legislation.

The State has several options for credit enhancement. For example, the State may issue loans to applicants for the purchase of bond insurance, letters of credit, lines of credit and similar mechanisms to guarantee local payment of bond indebtedness. Currently the State issues such loans at no interest to be repaid at the end of the bonding period. Loans range from $50,000 to $80,000 and are made from a "security account" which was established by the enabling legislation. Another option is to reserve funds within the security account equal to one year of the community's debt obligation; this credit backing improves marketability of the community's bonds.

Initially $2.5 million was appropriated for this wastewater fund from monies collected through a minerals severance tax. (A similar program was also established for drinking water programs.) The fund is supplemented by money received from repayment of loans made under the Utah State Wastewater Loan Program (described below). As of June 1984 six loans for credit enhancement purposes had been issued totalling $324,000. These loans supported projects with a total construction cost of $14.7 million for a leveraging ratio of 34 to 1.

Utah also established a loan program in 1983. The program was funded by a $20 million general obligation bond issue. These funds have already been committed with no current provision for additional funds. Loans were made at the State's cost of borrowing - 7.3%. Since loan repayments go to the security account for the credit enhancement program, this latter program will have funds available for some time. Consideration may be given to channelling all or part of these loan repayments into a revolving loan program with low interest rates.

Based upon the financial capability demonstrations, the Committee must often decide whether to extend a loan or credit enhancement assistance. Usually credit enhancement agreements are drawn for projects with larger costs, better bond ratings and greater ability to repay debt service. Private bond insurance companies generally require bond issues to be over $1 million, limiting participation of small communities.

Utah is reviewing various ways to encourage private sector financing. In addition, the State is evaluating contract operations of municipal wastewater facilities. A special study relating to Salt Lake City is underway.

For further information, contact:

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Bureau of Water Pollution Control
Utah Department of Health
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Salt Lake City, UT 84110
801-533-6146

Minnesota - A Proposed New Grant Program

Concerned about an estimated 500 small communities which might not receive Federal assistance prior to the 1988 compliance deadline as well as the restriction on development opportunities caused by inadequate wastewater facilities, the Minnesota Pollution Control Agency contracted in 1983 with a consultant to evaluate State financing options. The following programs were approved by the Minnesota State legislature during its 1984 session:

- 0-15% supplemental grant based on the financial need of the community.
- establishment of a "Minnesota Fund" which would provide 50% grants for planning, design and construction of treatment and interceptor sewers to communities not receiving Federal assistance (advanced treatment projects to receive 65% grants); reasonable reserve capacity would be allowed (20 years for treatment, 40 years for interceptor sewers); the size of grants may vary according to need; expected funding is $25-40 million per year for six years; funds will be from a State general obligation bond.
- setaside of 10% of the State grant program to assist projects needed for high priority industrial developments.
- requirement that all wastewater authorities establish a fund for facility replacement costs or upgrading at the end of the existing system's expected useful life.

For further information, contact:

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Grants Section, Division of Water Quality
Minnesota Pollution Control Agency
1935 West County Road B2
Roseville, Minnesota 55113
612-296-7205

North Carolina - An Innovative Revenue Source

In 1983 the North Carolina general assembly passed legislation authorizing an optional one-half percent sales tax. Revenues are collected by the State and returned to counties and municipalities based upon population. Although the revenues may be used for several public purposes, during the first five years at least 40% of the municipalities' revenues must be used for capital expenditures for water and sewer projects; 30% during the second five years. If all counties levy this tax, the State estimates that approximately $76 million would be generated in the first five years for water and sewer projects.

For further information, contact:

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Division of Environmental Management
Department of Natural Resources and
Community Develpment
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Raleigh, NC 27611
919-733-6900

Tennessee - A Comprehensive Look at Infrastructure and Development Opportunities

The State of Tennessee is concerned about both the large current unmet need for wastewater facilities as well as the difficulty in providing infrastructure to accommodate future growth. To address these concerns, the governor established a Safe Growth Team. Studies were prepared for the Safe Growth Team and subsequently presented to the Select Committee on Clean Water composed of eight members of the Tennessee General Assembly, commissioners of six executive branch departments, citizen members of the Safe Growth Team and the State Attorney General.

The following measures to address wastewater infrastructure needs were approved by the Select Committee on Clean Water and recommended to the 93rd General Assembly. Necessary legislation was passed and new programs were funded at the levels shown below:

- 55% State construction grants to communities not receiving Federal assistance; the grants would be funded for treatment only
- 80% engineering grants for those cities that use only local financing for construction
- $12 million was appropriated for FY 84-85 from general revenue for these new construction and engineering grants
- peer group review and value engineering of projects prior to award of grants to assure proper consideration and application of appropriate technology
- strong incentives are tied to the construction grants to encourage local governments to establish adequate user rate structures.

The grants program is viewed as a 20 year effort which will be funded from general revenues in continuation budgets rather than from State borrowing. With Federal grants at current levels, new State grants and local match dollars the combined program could meet the State's $1.8 billion wastewater treatment needs. To assist Tennessee cities and utility districts in this new effort, $1 million was appropriated for staff additions in the Department of Health and Environment and for contract assistance through the State's Municipal Technical Advisory Service (MTAS). MTAS will help local governments with the new peer group review, value engineering and rate setting requirements.

In addition to the new grant program the existing State loan program was modified. The Local Development Authority loan program uses the proceeds from State marketed revenue bonds or short-term notes to make loans for water supply, wastewater treatment and resource recovery projects. In the past these loans had been secured by the revenues from the city or county water, wastewater treatment or resource recovery projects as well as a lien on the State-shared taxes returned to local governments receiving the loans. Interest rates are set at the cost of State borrowing.

A new statutory reserve fund of $1 million has been created to provide additional security for the bond sales and allow cities and counties to offer a smaller percent of annual State-shared taxes as collateral for the loans. The $1 million in the statutory reserve fund will leverage approximately $7.5 million in loans beyond the previous debt limits required by the Local Development Authority. Some smaller cities will be able to borrow up to twice as much money under the new program.

The State government is encouraging cities and utility districts to examine the alternatives of private sector financing for construction and contract operations. A major educational and technical assistance program is underway to help those cities most interested in this financing concept to meet their wastewater treatment needs.

For further information contact:

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Safe Growth Team
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Georgia - A Multi-faceted Flexible Approach

The State of Georgia recognized a potential funding problem for current facility needs, special financing problems for small communities and constraints on attracting development due to lack of facilities. An Environmental Facilities Study Commission was established to explore these issues and recommend solutions. The Commission submitted its report to the Georgia governor and general assembly in December 1982. Many of the Commission's recommendations were enacted in the 1983 amendments to the Georgia Development Authority Act. The amendments gave broad authority to the Georgia Development Authority to establish (1) a revolving loan program with low or no interest, (2) a new State grant program geared toward offsetting a portion of local projct costs and (3) establishment of a bond pool.

Recommended funding levels are $10 million per year for grants and $50 million per year for bond assistance over the next ten years.

The 1984 General Assembly appropriated sufficient funds to leverage $30 million in five year general obligation bonds for this program. These funds will be available to the Georgia Development Authority in 1984 for the purpose of making loans to local governments at very attractive rates (over 25 year periods) taking advantage of the State's AAA bond rating. In reviewing assistance requests the Georgia Department of Natural Resources (which currently manages the Federal construction grants program) will evaluate the technical adequacy while the Georgia Development Authority will examine the financial feasibility of projects and determine the appropriate type and level of financial assistance.

For further information, contact:

Jack Dozier
Georgia Department of Natural Resources
Environmental Protection Division
270 Washington St., SW
Atlanta, GA 30334
404-656-4708

Wisconsin - Considering Its Options

Wisconsin has conducted a review of options to assist wastewater project financing. This study outlined the following options: (1) evaluation of State laws and regulations relating to implementation of private sector financing, (2) consideration of elimination of State income tax on municipal bond interest earnings from Wisconsin bond issues, (3) allow expanded use of 50 year general obligation municipal bonds to reduce annual costs, (4) modification of local debt limitations, (5) require local establishment of reserve funds to provide at least 50% of facility replacement costs,

(6) require user charges to reflect total costs (i.e., self-sufficient), (7) provide credit guarantees for local bond issues, (8) establish a bond pool, especially for small communities and (9) facilitate use of innovative local financing (e.g., deferral of interest and capital payments, zero coupon bonds, lower denomination bonds).

No specific proposals are currently under consideration to implement any of the above options. Further evaluation of new State programs is expected during 1984.

The State initiated a small supplemental grant program in 1966 known as the Wisconsin Fund. Funding levels were greatly increased beginning in 1978. The grant program is currently authorized through 1987. During 1984-85, $103 million in grant funds is available; this figure increases by 10% annually to almost $125 million in 1986-1987. Grants are usually restricted to 60% of the project eligible construction costs. If Federal funds are also used the total grant assistance package cannot exceed 75% of the total project cost.

For further information, contact:

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New Jersey - Proposed Environmental Infrastructure Trust

Like other States, New Jersey recognized potential funding problems for meeting current and future facilities needs as well as financial limitations of local communities. To meet these problems, the State is pursuing the establishment of an Environmental Infrastructure Trust which would provide low interest loans and/or grants to local communities for the construction or

leasing of specific projects. The Trust would have comprehensive responsibility for providing financing assistance to various kinds of local projects including not only wastewater treatment but water supply, resources recovery and other approved infrastructure capital projects as well. Primary emphasis would be placed upon revolving loans so that more communities could be assisted over a longer period than is possible with a grant program. The Trust would be given flexibility to meet changing local needs for assistance rather than predetermining funding levels for specific program areas, subject to the provisions of the enabling act. A bill in the State Legislature, expected to be approved shortly would establish the Environmental Infrastructure Trust. The bill has been extensively reviewed to ensure that it will comprehensively address the needs of the State.

It is anticipated that the Environmental Infrastructure Trust would be capitalized from a variety of sources. The Trust has been designed for disbursement of monies in the form of grants, and will therefore have the authority to receive future Federal allocations, including Clean Water Act funds, to award to grantees in New Jersey (in conformance with State and Federal requirements). In addition to the Trust's ability to award grants, the State hopes that various Federal funding programs are modified or expanded to permit States to utilize certain Federal allocations for the award of loans for projects. The State will also seek to transfer to the Trust currently unobligated proceeds from certain existing single and multiple purpose State bond issues. Interest earnings from those accounts may also be transferred to the Trust. Approval would be sought to shift repayment of existing loans to the Trust rather than to the general State treasury. The State Legislature may also appropriate additional funds to the Trust from general revenues. Finally, the Trust would be authorized to issue bonds, notes or other obligations to raise funds for the award of loans and grants. To assist in financing the remaining local share, the Trust would be able to pool local funding needs into larger bond issues handled by the Trust or, alternatively, to guarantee payment of bonds or other obligations issued by the community to reduce local financing costs.

In addition to the above, the State is continuing its effort to convert its 8% wastewater construction grant matching program to a no interest loan program. There has been some local resistance to further reductions in grant availability for wastewater construction. However, the State believes that he benefits associated with adoption of a self-perpetuating funding mechanism, in consideration of the State's large water quality improvement needs, warrants this program change.

The State is also interested in promoting greater private sector involvement/privatization in wastewater and other infrastructure project financing (e.g., leasing arrangements, investor tax benefits) and contract operations. An analysis of impediments in existing statutes has been completed. Appropriate legislation has been developed and is expected to pass shortly. The new legislation is intended to resolve these issues dealing with issues such as contractural provisions, bidding requirements, tax implications and rate setting approval.

For further information, contact:

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WHAT CAN STATES DO?

This section outlines the broad range of options States might consider to provide either direct financial assistance or to assist communities in arranging financing. The general categories include: grants, loans, bond assistance, and private sector financing. If a State is considering various

options, it should compare the relative advantages and disadvantages, State costs, cost-effectiveness, implementation feasibility and potential impacts of the approaches.

Grants - Most existing State grant programs provide 10-15% of the total eligible project costs to all communities receiving Federal grants. Since project eligibility criteria have been generally the same as those established by EPA, project administration has been relatively straight forward.

With the reduced Federal appropriations, eligibilities and grant share, many States may want to modify their own programs to make assistance available to help fill the need. In some cases, States may be able to increase the amount of money for grants. Where that is not possible, States may want to reexamine how State funds are distributed. For example, funds can be targetted to communities based upon financial need or other criteria such as community size or project type. The accompanying box outlines a number of possible changes to State grant programs.

Possible Changes in State Grant Programs

- Change in State match % (increase, decrease) for wastewater treatment projects.
- New State grant program.
- Provision of grants to communities not receiving Federal assistance.
- Change in project eligibilities (e.g., planning and design assistance, collector sewers).
- Change in amount of funds available.
- Change in how to fund program (annual appropriation, long term bond).

- Change in project priority/selection criteria (water quality/public health impact, size of community, average household income, cost of projects).

- Reduction or elimination of State grant program in favor of loan program.

Loans - Loans are expected to become an increasingly popular State option to assist local financing. The terms of repayments may vary significantly from State to State. Terms of repayment may also vary within a State depending upon the type of project, whether the community is also receiving a grant, the size of the loan, the community's credit worthiness and other factors. Where loans would substantially replace a grant program, States may elect to offer loans at no or very low interest rates in order to reduce the resistance to the change. Ordinarily, interest paid by the community would cover program administrative costs as well as the State's borrowing costs. Since States often have higher bond ratings, a State loan would usually be less expensive than a local bond issue.

Given a possibly large demand for loan assistance, many States may find it difficult to fund a loan program from the general fund. As a result, initial capitalization is usually from the proceeds of a State bond issue. If interest charged is less than that necessary to pay for the State's bond amortization, the difference may be subsidized by the general fund. If the loan program is established on a revolving basis, a State can assist many more communities over a longer time period.

As in grant programs, loan amounts can either be a fixed, uniform amount based upon the total eligible project costs or vary according to need or other consideration. Many States offer higher loan amounts at lower interest for communities receiving Federal and/or State grant assistance. States could develop a flexible program to combine loan and grant offers based upon varying local needs. To assist more communities, some States may establish maximum loan amounts. In addition to project construction, some States may find it desirable to offer loans for project planning and design. Loan programs typically require a demonstration of ability and intent to repay. The loans are usually secured through user charges, local taxes, future State aid or a promissary note.

Bond Assistance - Possible State bond assistance activities are outlined in the accompanying box. In general, State bond assistance programs may have either of two objectives: (1) provide technical assistance in bond issuance or (2) improve credit marketability of local bond issues.

Several States have established "bond banks" to assist local financing. State bond banks sell bonds and use the proceeds to purchase bonds issued by municipalities. The purpose is to lower borrowing and issuance costs for small and infrequent issuers in the following ways: improving the communities' access to the bond market, taking advantage of the State's better credit rating and market experience, achieving economies in bond issuance costs, and avoiding the widely changing conditions of the credit market.

Another option is for States to guarantee repayment of local bond issues, sometimes referred to as a loan guarantee program. Since investor risk is lower, the community can secure better terms on its bond issues. In some cases a guarantee fee may be charged to communities in order to build reserves which may be necessary to provide local assistance. Where a State provides a guarantee, there may be a reassessment of the State's bond rating. Consequently, such guarantees should only be used where necessary. The risk to the State will be a function of the underlying credit of the communities, the soundness of the proposed system (both from a technological and a financial standpoint), and outstanding State indebtedness. Bond repayment insurance is available commercially, but generally at a somewhat higher cost to the municipality. The State may agree to pay the bond insurance premium.

States may undertake various other efforts to improve the marketability of local bond issues. These include technical assistance to local communities on various financing techniques, assistance in achieving a better credit rating (or obtaining one if not previously rated) and working with regional banks to improve confidence in local wastewater projects.

State Bond Assistance Activities

- State special financing authority issues bond, relends funds to communities at cost or reduced rate (this result is similar to a State loan fund, but is generally administered by a financing agency rather than the construction grant program management office).

- State purchase local issues, consolidate and market new State issue at preferred terms.

- Provide voluntary technical assistance in bond marketing and otherwise facilitate debt issuance; assist communities in efforts to upgrade credit ratings.

- Guarantee payment of local debt to improve marketability (e.g., bond insurance, letter of credit, moral obligation); if not provided by the State directly, the State may provide assistance in obtaining or paying the costs of a private sector guarantee from a bank or private bond insurance firm.

- Investor interest and opportunities may be increased through local sale of small denomination, tax exempt "mini-bonds"; the State may need to provide authority and encourage use of such bond market innovations.

- Where appropriate, States may encourage greater bond market participation through the use of financing techniques such as double-barrelled bonds, zero coupon bonds, put option bonds and warrants. (A double barrelled bond combines features of revenue and general obligation bonds. A zero coupon bond is sold at discount since the return to investors is provided by accretion in value at maturity rather than through current interest coupons. A put option provides the right to demand repayment of principal prior to a bond's maturity. A warrant authorizes the investor to purchase additional bonds at a set price for a specified time period.)

Private Financing - Much interest has been expressed recently in the concept of private sector financing. Federal regulations may limit this concept to local share or to non-Federally funded facilities. Moreover, recent changes in tax legislation have further limited its attractiveness. Nevertheless in some cases significant cost savings may be possible.

These financing techniques include a variety of leasing arrangements which provide tax benefits to investors. Private sector financing can include construction, ownership and operation of wastewater facilities. This broader perspective includes such things as turnkey arrangements and contract operations. A community considering such arrangements must clearly understand the nature of the proposed contract, mutual responsibilities, labor relations implications, and other factors.

The primary responsibility for initiating private sector financing participation is at the local level. The State may want to decide whether it wants to either discourage or encourage such arrangements. If the State wishes to facilitate private financing approaches, it should review State laws and regulations and eliminate possible impediments. In addition, the State may wish to sponsor workshops, prepare information materials or provide field technical assistance to communities interested in this approach. The State may also wish to clarify the implications of various private sector financing approaches for NPDES compliance, public service commission rate setting review and other State regulatory procedures.

There is considerable interest in ways States can assist private sector financing and operations of facilities. Among the States considering privatization are Alaska, California, Colorado, Iowa, Missouri, Montana, New Jersey, Ohio Tennessee and Utah.

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Evaluation of Private Financing for
Wastewater Treatment Facilities

Prepared by
Peat, Marwick, Mitchell & Co.

for
U.S. Environmental Protection Agency
Office of Water Program Operations
401 M Street, S.W.
Washington, D.C.

November 15, 1984

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November 15, 1984

Mr. Ralph Sullivan
U.S. Environmental Protection
Agency
401 M Street, S.W. (WH-546)
Room 1121 - East Tower
Washington, D.C. 20460

Dear Mr. Sullivan:

Enclosed is the final report "Evaluation of Private Financing for Wastewater Treatment Facilities," prepared by Peat Marwick for your office. The purpose of the study was to examine the various aspects of privatization including tax benefits, net costs and savings to the U.S. Treasury and municipalities, and the potential market within the U.S. The analyses within the study were conducted using a microcomputer model developed by Peat Marwick.

We enjoyed working with you on this engagement and look forward to being of further service to your office in the future. If you have any questions or comments on the material, please call John Wander or Mel Paret.

Very truly yours,

Peat Marwick Mitchell & Co.

PEAT, MARWICK, MITCHELL & CO.

John Wander

John A. Wander, Principal

JAW/BLR
Enclosures

FOREWARD

This report was prepared for USEPA's Office of Water Program Operations under contract 4W-3416-NASX. The report contents do not necessarily reflect the views, policies, or conclusions of the USEPA.

This report was written by Mel Paret and Mark Kellett of Peat Marwick's Washington, D.C. office. Walt McGill of Peat Marwick's Washington National Tax Practice provided input and and review assistance on tax issues. John Wander was the Peat Marwick principal responsible for the engagement. Appreciation is extended to Ralph Sullivan, George Ames, and Charles Moore of EPA's Office of Water Program Operations for their support and assistance.

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SECTION I

INTRODUCTION

Private financing of public service facilities, such as wastewater treatment plants, is a fairly new concept growing in use primarily as a result of the Economic Recovery Tax Act of 1981. This law allowed private investors to realize substantial tax benefits from the accelerated cost recovery system (ACRS) established for depreciation deductions as well as from investment and energy tax credits. Many types of financing transactions were made attractive as a result of the 1981 Act including the safe harbor lease, tax-exempt leasing, and the sale-leaseback arrangement. Congressional concern over the use of these types of financing for public service projects led to the Deficit Reduction Act of 1984 which greatly curbed the benefits of tax-exempt leasing and restricts financing with tax-exempt industrial development bonds. In the 1984 Act, long-term service contract arrangements were generally allowed with special provisions for solid waste, energy cogeneration, and wastewater treatment and collection facilities. With the tax incentives afforded for these types of facilities, private investment should be attracted to fill certain financing needs for wastewater treatment facilities.

Objectives of Study

Private funding of wastewater treatment facilities has been viewed as a viable alternative to federal, state, and local government financing. The substantial amount of financing needed to meet the goals of the Clean Water Act coupled with the limitations of the public financing capabilities and the potential savings afforded by private financing make privatization an attractive alternative to be considered by municipalities. This study examines the various aspects of private financing relative to wastewater treatment facilities including tax benefits, net costs and savings, and the potential market in the U.S.

Study Approach

This study accounts for the tax changes recently enacted in the Deficit Reduction Act of 1984 in its evaluation of private financing scenarios. Using models developed by Peat Marwick, financing scenarios are compared by cost to the U.S. Treasury and to municipalities. A selection of different private financing arrangements are evaluated and sensitivity analyses were conducted to assess variability in market conditions. Data from the 1982 Needs survey is also examined from the perspective of privatization potential.

Four sections make up the remainder of this report. Section II discusses the 1984 Tax Act, comparing appropriate sections to the prior tax law. In Section III the model used in conducting the analyses is described along with the calculations and various assumptions used. Section IV presents the results of the private and public financing scenarios applied to a $10,000 hypothetical wastewater facility. The section includes a most likely

scenario, sensitivity analyses, purchase options, and commercial versus IDB financing. Finally, in Section V, the potential for privatization of various types of wastewater facilities is discussed, and an analysis of Needs survey data is conducted.

SECTION II

DISCUSSION OF TAX LAW CHANGES

On June 27, 1984, the U.S. Congress passed into law the Deficit Reduction Act of 1984. The law significantly reduces the economic benefits of municipal or tax exempt-leasing alternatives. Alternatives under full service contracts have not been substantially altered even though new conditions governing their determination and use were established. The major changes in the law are related to depreciation and tax credit allowances for both tangible, personal property (equipment), and real property (land, buildings). In addition, as part of the tax bill package, the use of industrial development bonds (IDB) will be substantially limited, affecting financing costs for privatization projects.

Exhibit II-1 presents a summary of the tax law changes as they affect municipal leases and full service contracts. In the municipal lease scenario, the private company finances and owns the facility and leases it back to the municipality to operate on a regular basis. Until recently, under this scenario the private firm could use ACRS to depreciate the facility and therefore take advantage of large tax write-offs. However, under a municipal lease, the new tax law disallows ACRS for personal property and severely restricts its use for real property. ACRS for real properaty may be used in a municipal lease arrangement if the following conditions are met: 1) IDBs are not used; 2) no fixed purchase option is contained in the lease; 3) no sale/leaseback occurs after the facility has been in service 3 months; and 4) the lease does not exceed 20 years. A wastewater treatment and collection facility contains a large portion of tangible, personal property which previously could be depreciated over 5 years or less, however, now because of provisions in the 1984 Act, must be depreciated over much longer periods. Therefore, under the new law, a municipal lease is not an economically attractive alternative for private financing of wastewater treatment facilities. This outcome is reflected in the analysis presented in Section IV.

At the bottom of Exhibit II-1, the tax law changes are presented relative to service contract arrangements. Under a service contract agreement, a private company finances, owns and operates a facility and the municipality pays a fee for the service. As shown in the exhibit, this alternative is not strongly impacted by the tax changes. The only major difference is that real property ACRS has shifted from a fifteen-year to a eighteen-year schedule. Therefore, the service contract arrangement is remaining a viable privatization option. However, the new law established special rules which must be adhered to by solid waste disposal, cogeneration or alternate energy and clean water facilities in establishing a service contract. These are: 1) service recipient cannot operate the facility or bear any significant financial burdens if there is nonperformance under the contract; 2) service recipient cannot operate the facility; 3) service recipient cannot receive benefits if operating costs are less than projected; and 4) no fixed purchase option is allowed. A review of the tax-exempt leasing provisions in the Deficit Reduction Act, prepared by Peat Marwick's National Tax Practice, is provided in Appendix A.

One issue that affects both service contract and municipal lease options is the limitations placed on IDB use. The new tax code allows the greater of $150 in IDB issues per state resident or $200 million per state. The $150 per capita amount is reduced to $100 per capita after 1986. In addition, any part of an authorized issue for pollution control projects may be carried over for up to six years if the funds are not used in a specific year. The limitation applies to all IDBs issued other than those for low-income housing and certain publicly owned airports, docks, wharves, mass-commuting, convention, and trade-show facilities.

The National Governors' Association conducted an analysis to estimate the impact of the new IDB cap on states. The estimates (shown in Appendix B) show that under the new legislation, 14 states will have reduced bond issuing authority in 1984 and 1985 compared to U.S. Treasury estimates of issues in 1983. In aggregate, the issuing capacity of all states are estimated at about $36 billion for 1984 and 1985 under the new legislation whereas the Treasury estimates for 1983 issues are about $26 billion. Therefore, based on these estimates it is anticipated that IDB issues for pollution control may not be restricted until possibly after 1986 when the new $100 per capita rules comes into effect. However, it is possible that if additional federal cutbacks occur in community grant programs, such as EDA and UDAG, increased competition for IDBs may limit uses for pollution control purposes.

EXHIBIT II-1: SUMMARY OF TAX LAW CHANGES

MUNICIPAL LEASE

FINANCING CHARACTERISTICS	NEW LAW	PRIOR LAW
1. Depreciation		
• Personal Property	Straight line over 125% of lease term or ADR Class Life, whichever is longest.	Accelerated Cost Recovery Schedule (ACRS) - 5 Year.
• Real Property	40 year straight line, or 18 year 175% declining balance applies if the tax-exempt entity uses more than 35% of the property and following conditions are met: 1) No IDBs; 2) No fixed purchase option 3) No sale/leaseback (except within 3 months of services use); 4) 20 year or less lease period.	15 year ACRS.
2. ITC	Not allowed.	Not allowed.
3. IDBs	Quantity limited to the greater of $150/state resident or $200 million per state. Requires use of straight line depreciation over ACRS recovery period.	No quantity limitations.

EXHIBIT II-1 (CON'T)

SERVICE CONTRACT

FINANCING CHARACTERISTICS	NEW LAW	PRIOR LAW
1. Depreciation		
• Personal Property	5 year ACRS.	5 year ACRS.
• Real Property	18 year - 175% declining balance model.	15 year ACRS.
2. Investment Tax Credit	Allowed (10%).	Allowed (10%).
3. Industrial Development Bonds	Quantity Limited to the greater of $150/state resident or $200 million per state.	No quantity limitations.

SECTION III

DESCRIPTION OF FINANCING MODEL AND OPTIONS

This section of the report describes the logic and assumptions used in developing the microcomputer model which produces the results presented in Sections IV and V. The model developed on Lotus 1-2-3 builds off of the previous model developed by Peat Marwick for EPA's Office of Water Program Operations.[1] With modifications, this model includes the same four financing options as previously presented: 100% local financing, 55% grant plus local financing, municipal leasing, and service contract arrangements. A major modification of the model primarily affecting the municipal lease option is the recent tax law provisions discussed in Section II. Other modifications made to the model include:

- purchase option evaluation;
- commercial versus IDB financing;
- sensitivity analysis function; and
- U.S. needs survey evaluation.

Financing Options

The model approach assumes that new wastewater facilities are constructed under one of the following financing options:

- 100% public financing;
- 55% grant financing with remainder financed locally;
- private sector municipal lease financing; and
- full service contract arrangement.

Costs to the U.S. Treasury and to the municipality are calculated on a present value basis to compare the above options. It is presumed that the driving force for privatization is the difference in cost to the municipality between the most attractive private option and the available public financing options. Each of the financing options is discussed in more detail below.

[1] Micro-Computer Model for Evaluating Privatization Financing Options for Wastewater Treatment Facilities, Peat, Marwick, Mitchell & Co., June 1984.

100% Public Financing. With this option, the municipality finances, owns, and operates the entire treatment and collection facility. The facility is financed with tax-exempt municipal bonds. The following cost calculations are made:

Cost to Treasury = Present value cost of tax-exempt borrowing (discussed subsequently in this section)

Cost to Municipality = Present value of annual debt service payments by municipality

55% Grant and Local Financing. The municipality owns and operates the facility and finances it using an EPA grant for 55% of the eligible costs with the remainder financed locally with tax exempt municipal bonds. Costs are calculated as follows:

Cost to Treasury = (55% x grant eligible cost) + present value cost of tax exempt borrowing

Cost to Municipality = Present value of the annual debt service payments for the local share of the project costs

Municipal Lease Financing. In this option, the private entity finances and constructs the facility and leases it back to the municipality. The facility is operated by the municipality. Under the new tax laws, accelerated cost recovery is severely limited for municipal leases, particularly for tangible property (versus real property), thus hindering the economic attractiveness of this option. Costs are calculated as follows:

Cost to Treasury = Present value of lost (or gained) taxation + present value cost of tax-exempt (IDB) financing (only if available)

Cost to Municipality = Present value of annual lease payments over the financing term

Service Contract. A full service contract arrangement assumes that the private entity finances, contracts, owns, and operates the facility. The option allows ACRS depreciation and investment tax credits (ITC) for eligible property. The model includes purchase options at years 10 and 20 in which the facility is sold to the municipality which finances it with tax-exempt bonds. These options are evaluated separately from the no-purchase option. The costs are calculated as follows:

Cost to Treasury = Present value of lost (or gained) taxation + present value cost of IDB financing (only if available)

Cost to Municipality = Present value of annual service charges over financing term

Cost of Lost Taxation

In the private financing options, the tax benefits allowed represent a cost to the U.S. Treasury (relative to public financing with no tax benefits). Tax benefits can also be passed on to the municipality in terms of lower service charges. The cost to the Treasury is calculated as:

Cost of Lost Taxation = (Income before taxes x marginal tax bracket) + investment tax credit (if eligible)

The present value is calculated for the stream of projected tax losses over the financing term. This approach assumes that the private company or investor will have sufficient income to use all tax benefits in the year incurred. Carryback and carryfoward of taxes for use against taxable income in other years is not considered.

Cost of Tax-Exempt Financing

The cost of tax-exempt financing is calculated for financing with municipal bonds and IDBs. The approach assumes that the project is financed at tax-exempt interest rates where it would otherwise be financed at commercial taxable rates. The method used in estimation is based on that used by the U.S. Treasury.[1] The calculation equation follows:

Cost to Treasury = $t_r * i_t * P$

where:

$t_r = (i_t - i_e)/i_t$

and

t_r = marginal tax rate of investors switching from taxable to tax-exempt bonds

i_t = taxable interest rate of bonds

i_e = tax-exempt interest rate of bonds

P = principal of loans outstanding

This cost is calculated in the model annually over the financing term and on a present value basis.

[1] Modelling Revenue and Allocation Effects of the Use of Tax-Exempt Bonds for Private Purposes, Department of Treasury, OTA Paper 44, December 1980.

SECTION IV

EVALUATION OF FINANCING OPTIONS

This section presents an evaluation of the financing options available in the model. Each of the financing options is evaluated in terms of its cost to the U.S. Treasury and its cost to the municipality. As mentioned in Section III, the difference in municipal cost between the most attractive private financing option and the available public option is assumed to be the driving force for (or against) privatization. This section is divided into four sections: 1) results of the most likely financing assumptions (i.e., what variables or conditions are most realistic given today's investment climate); 2) sensitivity analysis of financing options (i.e., measuring impacts of varying key variables); 3) impact of purchase options; and 4) comparison of commercial and IDB financing. For all analyses in this section a hypothetical wastewater treatment facility costing $10,000 is evaluated to compare costs between financing options.

Most Likely Scenario

A most likely scenario was developed using various financing assumptions to represent current, realistic market conditions. These financing assumptions represent input variables to the model and are summarized in Exhibit IV-1. The scenario also assumes that no IDBs are available for private financing and that no purchase option is taken.

Using the model, the cost impact to the municipality and Treasury are calculated for each of the four basic options. These results are presented in Exhibit IV-2 and as graphs in Exhibit IV-3. As shown in Exhibit IV-2, the present value cost to the Treasury for a private service agreement is slightly less than that for a 55% grant given the model assumptions. The municipal cost is also similar between the two options, possibly making them equally attractive to a municipality seeking to construct facilities. Compared to 100% local financing, a service agreement is almost 25% less in municipal cost, making it a very attractive alternative. Because of the reduced tax deductions allowed for municipal leases, this option would generate revenues for the Treasury and would cost the municipality significantly more than all local financing. The entire model was printed out to demonstrate the calculations in the most likely scenario and is provided in Appendix C. It should be emphasized that the above results are based on a fixed set of assumptions which do not reflect dynamic conditions which can occur in the market place.

Sensitivity Analysis

The model was expanded to allow variation of key assumptions while holding all other assumptions constant. The analysis was conducted for the following variables:

- Interest Rates
- Return on Investment (ROI)
- Grant Eligibility
- Investor Tax Bracket

The analysis is run on four differing levels of each of these variables. For example, the ROI analysis is run for a return of 10 percent, 20 percent, 30 percent, and 40 percent. The values of the various input variables used in the analysis are summarized in Exhibit IV-4. It should be noted that while the subject variable is altered, all other variables remain at the level in the most likely scenario. The following discussion addresses the results of four sensitivity analyses that were run on the model. The results of varying these factors are again analyzed in terms of cost to the municipality and cost to the Treasury.

Interest Rates. The interest rate analysis run was based on four corporate bond rates (10, 12, 15, and 18 percent) and estimated rates for tax-exempt rates and federal money costs. To estimate tax-exempt rates and federal money costs, the relationship between these and corporate rates were evaluated using linear regression analysis of historical rates from 1982 to 1984. Exhibit IV-5 present the historical rates used to generate the rates used in the model (shown in Exhibits IV-4).

Exhibit IV-6 presents a graphic representation of the outcome of this analysis. The exhibit shows that for all interest rates, the costs to the municipality and Treasury for a service contract remain very close to that of the grant program. As shown in the municipal cost trends, costs for the private options decrease as interest rates increase. This is true, even though the annual costs paid by a municipality increase, because of the higher interest rates used in the present value calculations. With respect to cost to the Treasury as interest rates increase, annual tax losses from private financing actually increase, however the present value effect is greater than the increases, causing net decreases in Treasury cost. With the municipal lease, more income is generated for the Treasury at lower interest rates than at higher rates because of tax deductions for interest - thus the cost savings become less at higher rates.

Investor Tax Bracket. The results of the sensitivity analysis on effective tax bracket are shown in Exhibit IV-7. The graph reveals that the service contract is roughly equivalent to grant option in costs to both the municipality and to Treasury when the investor is in the 46 percent tax bracket. With a service contract, the cost to the treasury will increase as the investor's marginal tax bracket increases because of their increased utilization of tax deductions. The cost to the municipality for service contract payments will decrease because the investor income is enhanced by the write-offs in the higher tax brackets which are passed on to the municipality in terms of lower charges. Under the municipal lease option, an increase in tax-bracket means the investor will charge more to the municipality in hopes of maintaining the desired rate of return. Therefore, the cost to the municipality increases and the cost to the treasury decreases.

Grant Eligibility. Exhibit IV-8 provides a clear example of how the percentage of a project's grant eligble cost affects its overall economics relative to other financing options. The graph shows that a grant and a service contract are roughly equivalent in cost to the Treasury and municipality between 40 and 45 percent grant cost eligibility. Based on the

1982 Needs survey, the percentage of eligible backlog needs (Categories I, II IIIa, IVb) to total 2000 needs for Categories I-IV is about 43%. For projects with grant eligibility greater than about 40%, use of a grant within this analysis is more economically attractive to a municipality than a private service contract.

Investor Return. Exhibit IV-9 displays the results of increasing investor rate of return on investment while holding all other variables constant. On a general basis, municipal costs increase and Treasury costs decrease as investor rate of return increases. This is because the private investor must charge more to reach the desire return level and the Treasury benefits from increasing taxable income.

One exception to the above observations is the slight decrease in municipal cost when return on investment (ROI) moves from 10 to 20 percent. To explore this further, calculations were conducted at ROI of 5%. This resulted in higher municipal costs than at ROI of 10%. The increase in municipal costs at low ROI's is presumed to be a result of the present value technique of evaluating cash flows of an investment. Since the negative net cash flows that occur in future years of an investment have a greater present value cost impact at low ROIs than at high, additional revenues must be generated to compensate for these losses. Therefore, at low ROIs, as the rate increases, municipal costs decrease. This occurs to a point between 10% and 20%, where afterward more revenues must be generated as ROI increases to compensate for high returns.

Impact of Purchase Agreement Under Service Contracts

Using the most likely financing assumptions described earlier, the model was run to evaluate the cost impacts of the municipality's purchasing the facility at 10 or 20 years compared to the costs if purchase did not occur. The results of these runs are presented in Exhibits IV-10 and IV-11. The costs for the 100 percent public financing and 55 percent grant financing are included in the exhibits for reference purposes. The exhibit shows that with a 10-year purchase, the cost to the municipality is the lowest and the cost to the Treasury the highest. With a 10 year purchase, the investor can charge less to the municipality, because by 10 years the majority of the the tax benefits have been depleted, and by selling, the investors can maximize these benefits. The investors would have to pay income taxes on the selling price over the asset book value, however, these discounted over 10 years do not significantly affect the relative economics. The cost to the Treasury would also be greater with a ten-year purchase because of the additional net tax write-offs afforded.

Comparison of IDB and Commercial Financing

The difference between commercial and IDB financing for private service agreements was analyzed using the model and the most likely financing assumptions. These results are shown in Exhibits IV-12 and IV-13. The exhibits conclude that IDB financing saves the municipality money, and costs the U.S. Treasury money. Without IDB financing, the higher costs of commercial financing are passed on to the municipality and the Treasury receives additional tax revenue from commercial interest rates. These results are based on the methodology used for calculating the cost of the tax-exempt financing described in Section III of this report.

Exhibit IV-1

ASSUMED FACILITY COSTS AND PROPERTY CLASSES

PROPERTY	CAPITAL COSTS	USEFUL LIFE	ACRS PROPERTY	OTHER DEP. SCHEDULES
BUILDING	1500	50	10 YEAR	40-YEAR (STRAIGHT LINE)
LAND	500		NA	
EQUIPMENT	4000	15	5 YEAR	20 YEAR (125% LEASE)
STRUCTURES	4000	30	5 YEAR	20 YEAR (125% LEASE)
*TOTAL PROJECT COST	10,000			

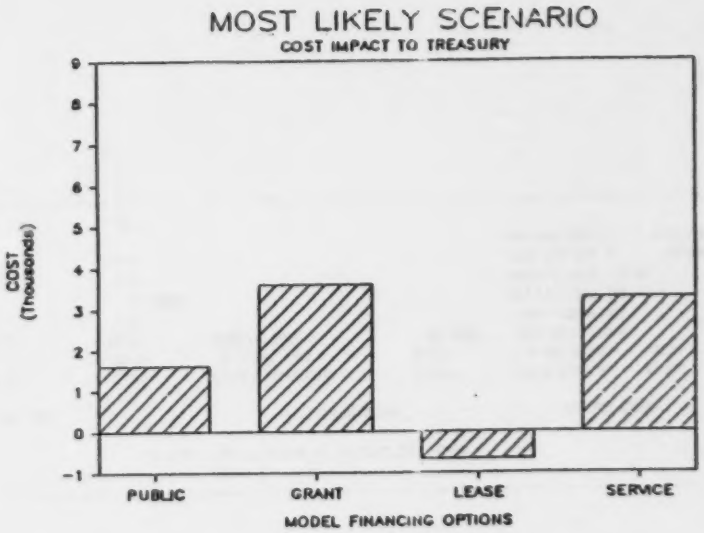
CASE SCENARIO: FINANCING ASSUMPTIONS FOR OPTIONS

-PRIVATE FINANCING-		-PUBLIC FINANCING-		-PROJECT COSTS-			
INVESTOR TAX BRACKET =	46.00%	FEDERAL MONEY COST =	9.71%	EPA ELIGIBLE =	43.00%	=	4300
INVESTOR EQUITY =	20.0%	TAX-EXEMPT RATE =	9.72%	EPA INELIGIBLE =	57.0%	=	5700
REQUIRED ROI (AFT. TAX) =	20.00%	MATURITY PERIOD =	20 YEARS	LOCAL FINANCING = (WITH 55% GRANT)			7625
INTEREST RATE (IDB) =	9.72%			PURCHASE PRICE (YR 10) =		75.0%	7500
MATURITY =	20 YEARS			PURCHASE PRICE (YR 20) =		50.0%	5000
ITC ELIGIBLE COST =	8000			PLANT O&M COST =	750 PER YEAR		
CORPORATE RATE =	12.00%			O&M INFLATION =	6.00 PER YEAR		
RATE USED IN MODEL =	12.0%						

Exhibit IV-2
Results of Most Likely Financing Scenario

FINANCING OPTIONS	APPROXIMATE COST TO US TREASURY	APPROXIMATE COST TO MUNICIPALITY
01: 100% PUBLIC FINANCING	1,613	10,600
02: 55% GRANT & PUBLIC FINANCING	3,596	7,635
03: PRIVATE MUNICIPAL LEASE	(1,970)	14,492
04: PRIVATE SERVICE AGREEMENT	3,268	7,761

Exhibit IV-3



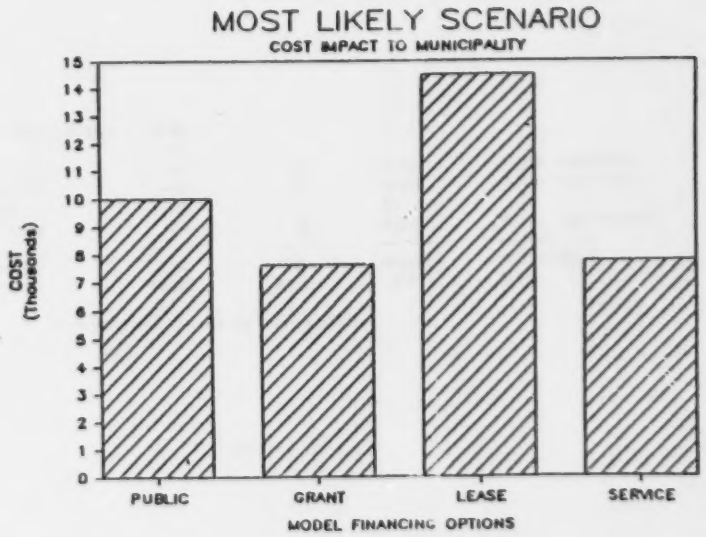


Exhibit IV-4
Input Variables for Sensitivity Analysis

	--INPUTS--			
	#1	#2	#3	#4
*INTEREST RATE SENSITIVITY				
-CORPORATE RATE	10.00%	12.00%	15.00%	18.00%
-COST FEDERAL FUNDS	6.89%	9.71%	13.94%	18.17%
-MUNICIPAL TAX-EXEMPT	7.55%	9.73%	13.01%	16.28%
*RETURN ON INVESTMENT	10.00%	20.00%	30.00%	40.00%
*INVESTOR BRACKET	25.00%	35.00%	46.00%	50.00%
*GRANT ELIGIBILITY	25.00%	43.00%	60.00%	75.00%

EXHIBIT IV-5
HISTORICAL DATA USED TO ESTIMATE INTEREST RATES FOR MODEL

DATE	AA INDUSTRIAL BONDS(1)	COST OF FEDERAL FUNDS(2)	MUNICIPAL TAX-EXEMPT(3)
1982			
JAN	14.98	13.22	13.16
APR	14.10	14.94	12.45
JUL	14.45	12.59	12.40
OCT	11.67	9.71	9.59
1983			
JAN	11.44	8.68	9.45
APR	11.11	8.80	8.96
JUL	11.87	9.37	9.46
OCT	11.92	9.48	9.64
1984			
JAN	12.17	9.56	9.61
APR	13.05	10.29	9.98

(1) SOURCE: BOND GUIDE, STANDARD AND POOR'S CORPORATION, NEW YORK, NY, 1982-1984.

(2) SOURCE: FEDERAL RESERVE BULLETIN, U.S. FEDERAL RESERVE BOARD, 1982-1984

(3) SOURCE: BOND GUIDE, STANDARD AND POOR'S CORPORATION, NEW YORK, NY, 1982-1984.

Exhibit IV-6

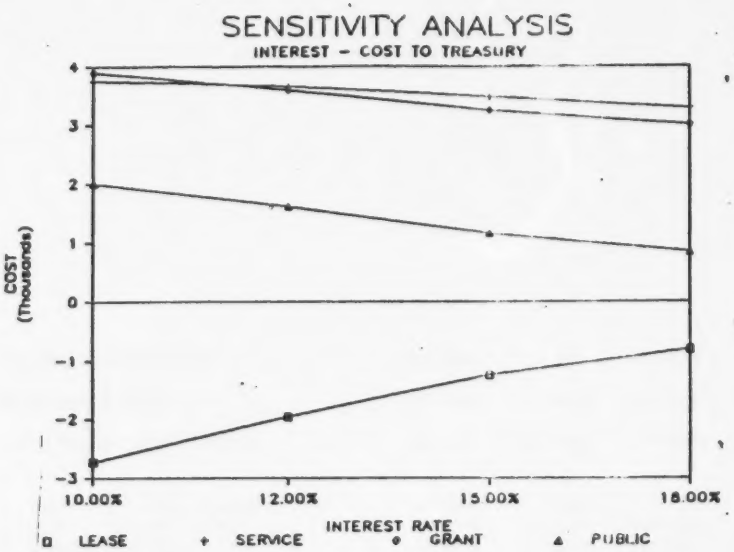
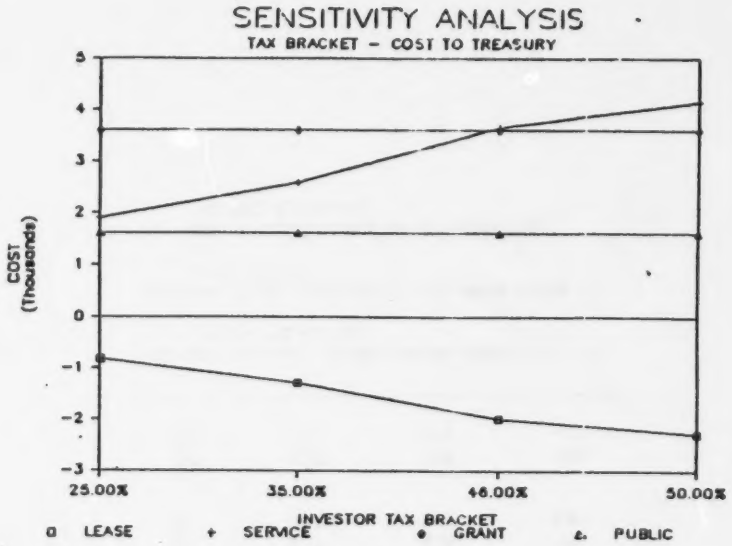
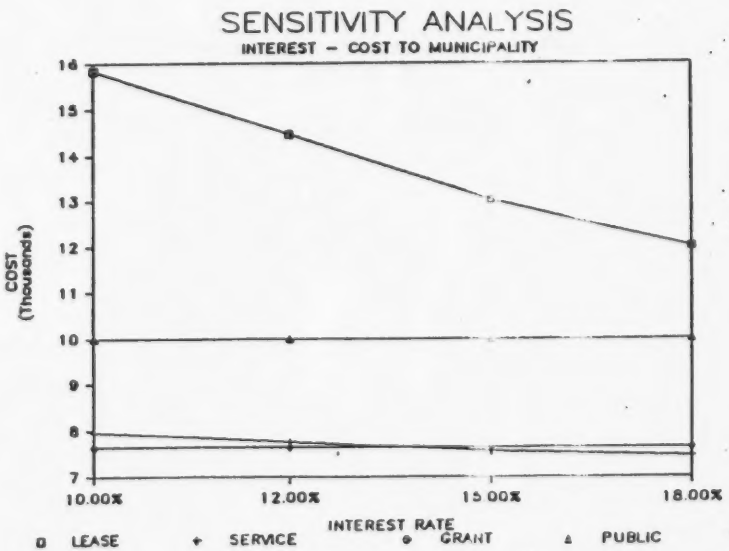
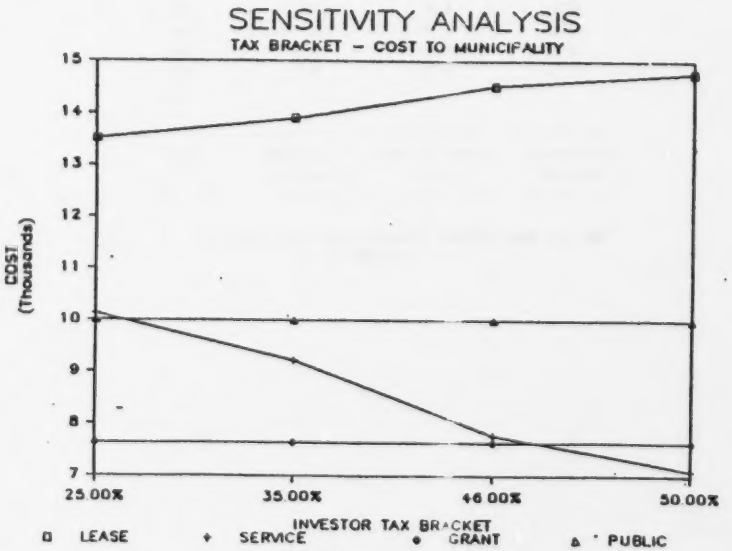


Exhibit IV-7







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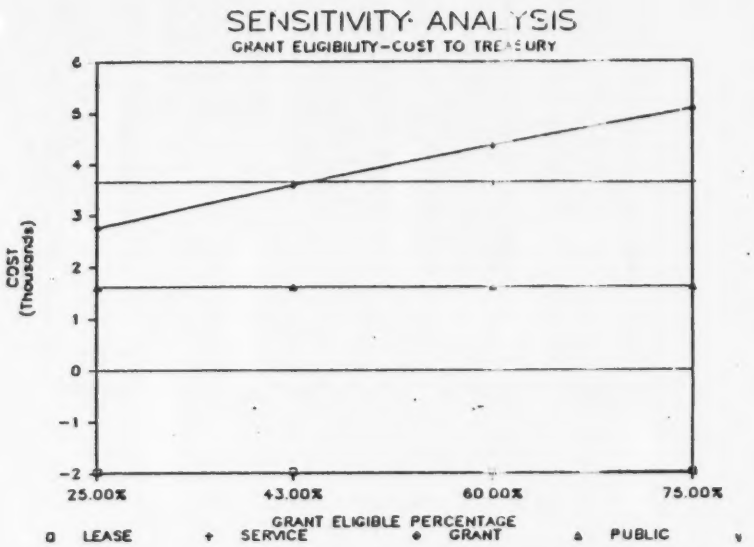

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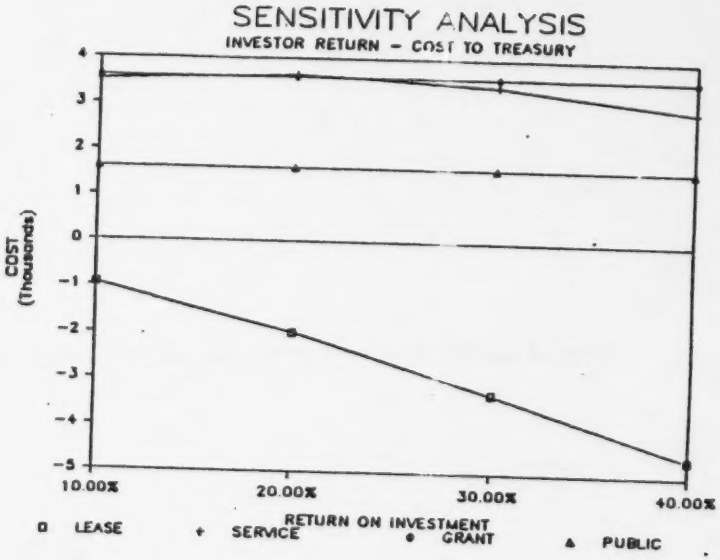

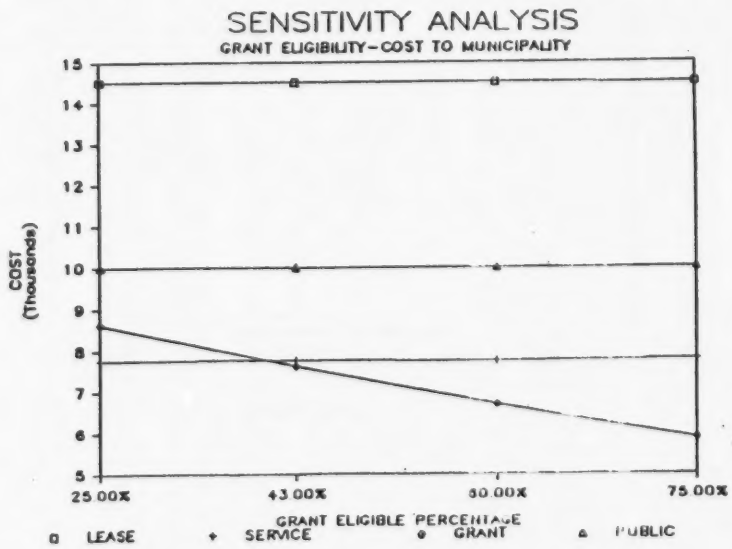

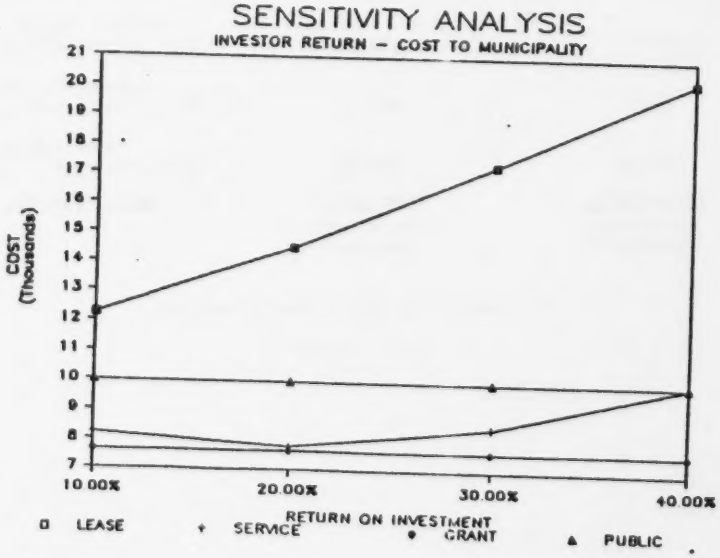

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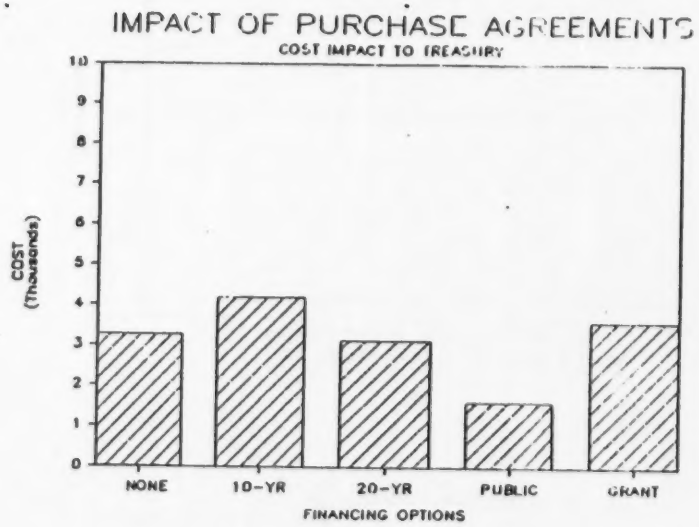
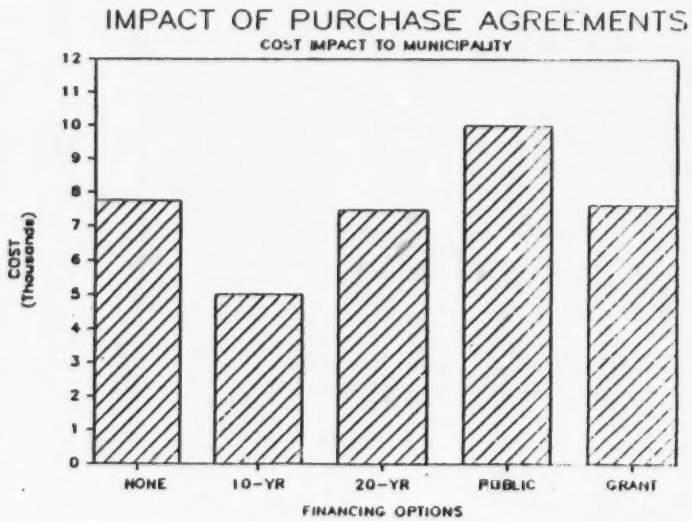




IV-13

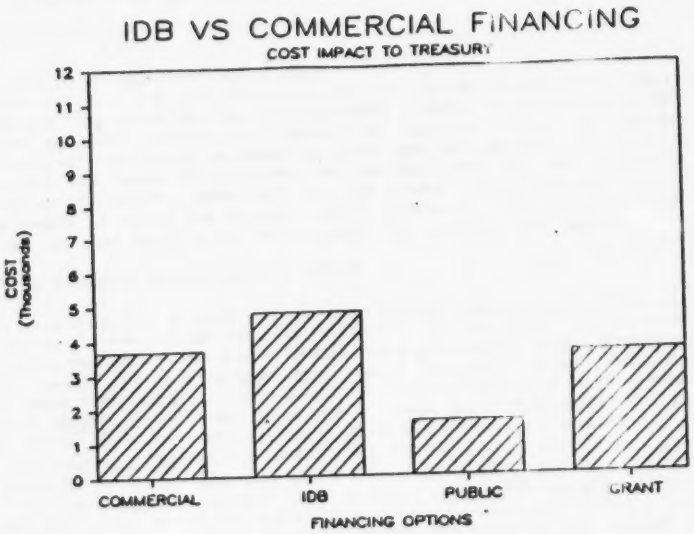
EXHIBIT IV-11

The Cost Impacts of Purchase Agreements

Financing Option	Approximate Cost to the Treasury	Approximate Cost to the Municipality
Service Contract with No Purchase	$3,268	$7,761
Service Contract with 10 Year Purchase	4,176	5,015
Service Contract with 20 Year Purchase	3,119	7,481
100% Local Financing	1,613	10,000
55% Grant & Local Financing	3,596	7,635

Note: Costs related to financing of hypothetical $10,000 facility.

Exhibit IV-12



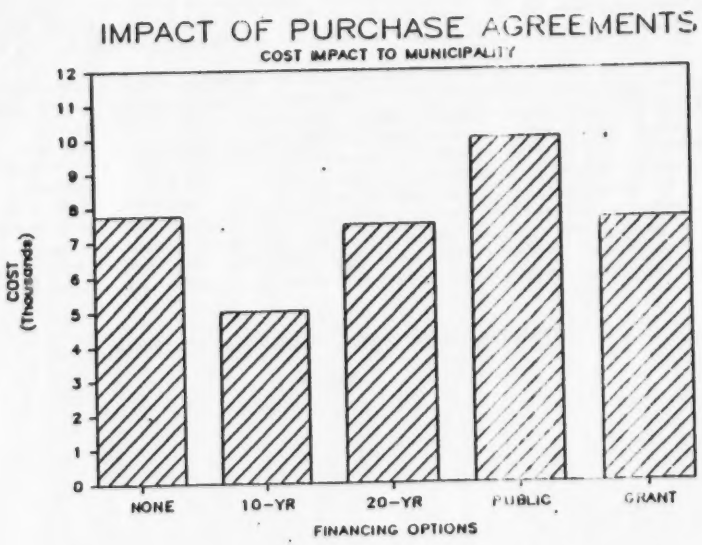


EXHIBIT IV-13

Evaluation of IDB Versus Commercial Financing

Financing Option	Approximate Cost to the Treasury	Approximate Cost to the Municipality
Service Contract with Commercial Borrowing	$3,658	$7,766
Service Contract with IDB Borrowing	4,780	6,705
100% Local Financing	1,613	10,000
55% Grant and Local Financing	3,596	7,635

Note: Costs relate to construction of hypothetical $10,000 wastewater treatment facility.

SECTION V

EVALUATION OF POTENTIAL PRIVATIZATION PROJECTS

This section of the report discusses the types of projects that could be attractive to private financing under the recent tax revisions and estimates the size of this market based on the USEPA Needs survey. As presented in the previous section, private financing under a service contract arrangement may be roughly comparable in user cost to an EPA 55 percent grant (i.e., when 43 percent of the total project cost is eligible and other financing assumptions are maintained). A service contract may also be about 25 percent less costly to the municipality than a local, tax-exempt financed facility. Although not documented here, efficiencies in planning, scheduling, and construction, as well as in operation and maintenance, are also possible to reduce costs under private ownership and operation.

Two major factors affecting the market potential and demand for private financing as an alternative to public financing are: 1) the availability of federal and state funding subsidies to compete with private financing; and 2) the enforcement pressures put on the communities that are out of compliance and are not expected to receive federal or state funding. The 1982 USEPA Needs survey estimated that $118.4 billion would be needed by the year 2000 for publicly owned treatment works to meet the goals of the Clean Water Act. Under the 1981 amendments, about $35.4 billion of backlog needs (Categories I-IV) would be eligible for a 55 percent EPA grant. With a $2.4 billion funding level from years 1983 to 1988, only about $14.4 billion of funds would be provided accounting for construction of about $24 billion of facilities.[1] Current funding to year 1988 would fall short of the total needs, however a doubling of funding could possibly satisfy the above backlog needs. Enforcement under EPA's recent Municipal Compliance Policy will focus initially on noncomplying facilities that have either received grant funding or are within the grants process. Next, noncomplying facilities not likely to receive grants are directed to be put on compliance schedules by the states and EPA regions. It is this latter group of facilities that will be most attracted to private financing alternatives.

Types of Potential Privatization Projects

The new tax laws still allow significant tax benefits for service contract arrangements in which the private entity finances, owns, and operates the wastewater facility. Municipal or tax-exempt lease options in which facilities are privately financed but publicly operated are no longer an economically attractive alternative (see Sections II and IV). Using a service contract arrangement, there are various types of wastewater facilities that could use private financing. There are different financing arrangements that can be identified to fit these facilities. These are discussed in the following paragraphs.

[1] At 75 percent grant for years 1983-84 and 55 percent grant for years 1985-88.

Privatization of wastewater treatment and collection systems is anticipated to occur in those areas where a distinct private service can be established. Private financing is possible for an entire facility or for separate segments that can be shown to be a discrete private operation (e.g., sludge handling and disposal). The operation must also show a profit-making intention to satisfy the Internal Revenue Service. Several broad categories of facilities having the potential for using private financing include:

- new facilities constructed where there is no existing plant and/or collection systems;
- existing facilities which were not funded by EPA construction grants; and
- existing facilities which were financed by EPA grants.

The first group of facilities are those entirely new treatment and/or collection facilities that could be constructed and operated on a "turn key" basis under a service contract. Many of the smaller community systems which currently have on-site or package treatment would make up a large portion of these facilities. It is also likely that a large portion of these facilities would not be in the process of receiving EPA construction grants and would be attracted to private financing.

The second group of facilities are those which have not been funded by EPA grants and anticipate additional financing needs. These existing facilities could be sold to a private company and any new treatment/collection needs could be financed under a service contract. Since a significant number of existing facilities have been purchased over the last 20 years using federal grants, a relatively small portion of facilities are anticipated to fall in this group. However, many older cities may have portions of their facilities that could be sold if a private operation could be established. This could include interceptors and collection systems that were not federally funded but are connected to a treatment plant that was funded.

The last group includes those facilities that were funded using EPA grants and therefore are not allowed to be sold under a private arrangement.[1] For this group, any new facilities which can be established as a distinct private service operation are possible for private financing under a service contract. New sludge handling and disposal facilities are likely candidates and could be operated similarly to solid waste resource recovery facilities, which are located and operated separately from public facilities. It is likely that the IRS would not allow the private ownership and operation of a single treatment unit within a series of publicly-owned treatment processes. There are several other types of financing projects that would have unclear boundaries between private and public ownership and would have to be tested within the tax courts for determination.

[1] OMB Circular Number A-102 prohibits leveraged leases or other arrangements involving property partially funded by federal agents.

A series of public/private financing arrangements has been identified as possible for use under service contracts. These arrangements may be possible for the types of facilities described above. Exhibit V-1 presents each arrangement, a brief description, and general tax implications.

Evaluation of Wastewater Needs Data

In this section, cost estimates are made for the wastewater treatment and collection facilities which have the most potential for private financing under service contract arrangements. The 1982 USEPA Needs survey served as the basis for the estimates.

A screening of the Needs survey was conducted in an attempt to identify those projects with the greatest potential for privatization (as discussed earlier in this chapter). The screening identified those facilities that are constructed as an entirely new facility on a site where no facility presently exists. This category corresponds to Item 16d#4 within the EPA-1 1982 survey form. It is thought that these new construction facilities would be distinct from any existing facilities and thus would have the most potential for private operation. Other categories distinguished within the Needs survey include enlargement, upgrading, and replacement of existing facilities. Sale of existing public facilities for private purposes is not considered here.

The results of the screening conducted by EPA for category 16d#4 are shown in Exhibit V-2. The program developed by EPA breaks out Needs cost data by population size and Needs categories. Of approximately $57 billion in total Category I-IV backlog needs, about $19 billion or 33 percent can be attributed to the construction of new facilities as defined by this screen. New facilities account for about $26 billion or 31 percent of $83 billion total Category I-IV year 2000 needs. Therefore, a significant proportion of total needs could have privatization potential. Also, as shown in Exhibit V-2, the largest portion of new facilities fall in the small population category (i.e., less than 3,500).

The data in Exhibit V-2 was modified and input into the model developed by Peat Marwick to estimate the total cost impact if all of the new facilities were privately financed under service contracts. The results of this are shown in Exhibit V-3. These results are based on the most likely financing assumptions described in Sections III and IV of the report and on the cost data shown in Exhibit V-4. As shown in Exhibit V-3, for $19 billion of backlog costs, private service agreements would cost the Treasury about $6.9 billion compared to $2.9 billion if local financing was used. For $26 billion in year 2000 costs, service agreements would cost the Treasury $9.3 billion compared to $3.9 billion for local financing. Also, given the financing assumptions made, aggregated costs to the municipalities would be almost 30 percent less for private versus local financing.

The cost data and results shown here are not intended to represent projections of actual cost impacts or to include all projects which could be privately financed. Rather, as described earlier, the results are based on a single screening by EPA using information available within the EPA Needs data and on a series of financing assumptions described in Section III and IV of this report.

Exhibit V-1

Types of Service Contract Arrangements

Type of Arrangement	Description	Tax Implications
1. New Facilities		
. Private Only	Private entity finances new facility, owns and operates through asset life.	Eligible ACRS and ITC tax benefits allowed. Benefits decline in later years.
. Private-Public	Private entity finances and operates new facility; sells to public after specified period.	ACRS and ITC tax benefits may be maximized; income and capital gains tax is possible on sale price.
. Public-Private	Public entity finances construction of facility but does not place in service. Private entity refinances and takes over ownership and operation	ACRS and ITC allowed as long as public does not put facility into service.
. Private-Private	Private entity finances and operates facility; after certain period, sells to another private entity.	ACRS and ITC allowed initially. Income and capital gains tax possible on resale. ACRS allowed on asset purchase. May result in large tax losses to Treasury.
2. Existing Facilities		
. Public-Private	Existing public facilities (not EPA funded) are sold to private entity.	ACRS allowed based on asset purchase price.

Exhibit V-2

MUB NEEDS: CONSTRUCTION OF NEW FACILITIES
($1000)

	—AUTHORITY POPULATION SIZE—					
	<2,500	2,501-10,000	10-50,000	50-150,00	>150,000	TOTAL
NEEDS COSTS						
*BACKLOG NEEDS						
-CAT. I	2,086,866	744,500	867,410	314,919	1,885,499	5,899,194
-CAT. II	163,763	45,951	78,488	53,841	74,878	408,921
-CAT. IIIA	5,657	724	42,367	0	24,772	73,520
-CAT. IVB	1,335,079	567,090	651,065	241,280	347,107	3,141,629
-CAT. IIIB	1,931	1,950	1,938	0	922,589	928,408
-CAT. IVA	3,626,856	1,763,047	1,564,398	578,817	1,096,344	8,628,662
-TOTAL	7,219,352	3,123,270	3,197,666	1,188,857	4,351,189	19,872,334
*2000 NEEDS						
-CAT. I	3,825,060	1,861,969	1,333,843	621,484	2,592,702	8,635,058
-CAT. II	242,808	67,962	114,687	78,653	181,828	685,058
-CAT. IIIA	5,657	724	42,367	0	24,772	73,520
-CAT. IVB	1,946,750	941,834	1,143,376	585,612	726,009	5,343,581
-CAT. IIIB	1,931	1,950	1,938	0	922,589	928,408
-CAT. IVA	4,386,276	2,095,459	1,859,722	756,885	1,331,475	10,429,856
-TOTAL	9,607,682	4,163,898	4,495,866	2,042,634	5,699,375	25,815,475
TOTAL NUMBER OF FACILITIES						
-TREATMENT	7,482	674	485	217	117	8,975
-COLLECTION	7,108	868	698	142	185	8,975

Source: U.S. EPA Needs Database

Exhibit V-3
Summary of Financing Costs for Construction
of New Facilities
($1000)

	- Backlog Needs -		- 2000 Needs -	
FINANCING OPTIONS	APPROXIMATE COST TO US TREASURY	APPROXIMATE COST TO MUNICIPALITY	APPROXIMATE COST TO US TREASURY	APPROXIMATE COST TO MUNICIPALITY
01: 100% PUBLIC FINANCING	2,914,631	18,878,486	3,936,947	24,408,489
02: 55% GRANT & PUBLIC FINANCING	6,498,987	13,796,755	8,778,467	18,635,881
03: PRIVATE MUNICIPAL LEASE	(3,721,733)	25,389,672	(5,075,824)	35,752,859
04: PRIVATE SERVICE AGREEMENT	6,918,713	12,738,360	9,382,234	17,271,613

Source: Peat Marwick analysis using total costs in Exhibit V-2 and V-4

Appendix A

LEASING OPPORTUNITIES TO TAX-EXEMPT ENTITIES AFTER THE DEFICIT REDUCTION ACT OF 1984

Peat, Marwick, Mitchell & Co.
Washington National Tax Practice

EXHIBIT V-4

«AB NEEDS: CONSTRUCTION OF NEW FACILITIES»
-ASSUMED FACILITY CHARACTERISTICS-
($1000)

	—AUTHORITY POPULATION SIZE—				
	C,500	2,501-10,000	10-50,000	50-150,00	>150,000	TOTAL
«PROJECT NEEDS					
-BUILDINGS (10% CRT.I,II)	225,062	79,045	92,790	36,076	196,638	630,812
-LAND (5% CRT.I,II,IVA,IVB)	364,500	156,638	157,668	59,043	176,191	913,520
-STRUCTURES	2,312,056	1,442,761	1,656,952	542,469	1,516,799	6,256,037
-EQUIPMENT	2,312,056	1,442,761	1,656,952	542,469	1,516,799	6,256,037
-TOTAL	7,011,754	3,120,596	3,152,361	1,180,057	3,443,028	18,076,466
«PROJ NEEDS						
-BUILDINGS	382,586	186,197	132,364	62,146	253,278	863,566
-LAND	467,964	204,962	216,849	96,199	232,549	1,228,424
-STRUCTURES	4,252,637	1,894,851	1,952,371	981,817	2,875,283	11,162,279
-EQUIPMENT	4,252,638	1,894,851	1,952,371	981,817	2,875,282	11,162,279
-TOTAL	9,356,865	4,099,252	4,326,974	1,952,361	6,636,186	24,466,489

«NOTE: COSTS INCLUDE ONLY CRITERONIES I,II,& IV.

Government Services Newsletter

PEAT MARWICK

New York September 1984 Vol. 2, No. 3

Opportunities for Leasing to Tax-Exempt Entities After the Deficit Reduction Act of 1984

The material in this special issue of Government Services Newsletter *was prepared by Philip J. Wiesner, partner in Peat Marwick's Washington National Tax Practice.*

Introduction

The recently enacted Deficit Reduction Act of 1984 (Act) severely restricts the federal income tax benefits generally available to a lessor of property where the user of the property is a governmental entity or a not-for-profit organization. Fortunately, the Act does not apply to all these activities. Significant planning opportunities do remain under which individuals and corporations can obtain the full federal income tax benefits, while the property is being used by the tax-exempt entity. Because of the complexity of the new law and its stated congressional intent to eliminate abuses in this area, however, lessors are urged to exercise caution and to consult with their tax advisers before contemplating any such transaction.

Background

In recent years, all governmental entities, particularly state and local governments, have been caught in the dilemma of spiraling capital improvement needs and concomitant costs at a time when their ability to raise tax revenue has been declining or even specifically proscribed by law. Similarly, not-for-profit organizations such as hospitals and universities have been hard pressed to raise the funds needed to finance the usually expensive high technology equipment that they need to provide full service.

Since these entities do not pay federal income tax with respect to their usual activities, the accelerated tax benefits introduced by the Economic Recovery Tax Act of 1981 (ERTA) do not help them directly. Under ERTA, the cost of real estate could be recovered under the Accelerated Cost Recovery System (ACRS) over a fifteen-year period, while most equipment was recoverable over five years. (Under the new Act, the recovery period for real estate has been increased to eighteen years.) An alternative financing method to which tax-exempt entities increasingly turned was leasing. The basic concept of a true lease is that the ownership of the property is separated from the use of the property. In the context of a tax-exempt entity, a taxable person who can use the tax benefits owns the property and leases it to a tax-exempt entity. Thus, the lessor benefits from the tax depreciation and any applicable tax credits, while the lessee receives some economic benefit from the tax items through a reduction in rent.

Many transactions were structured as service contracts in which a private company would contract with a municipality to provide a service, such as solid waste disposal, on a long-term contract basis. The service contract had the added advantage of allowing the service provider to claim the investment tax credit, which is generally denied for property leased to a tax-exempt entity.

Finally, the financing costs of both a lease and a service contract could be significantly reduced where the municipality cooperated in the issuance of tax-exempt obligations to finance the project. This combination of private ownership and the use of tax-exempt bonds was sometimes referred to as "triple-dipping."

During the past several years, the Treasury Department became increasingly concerned about the possible revenue losses to the federal treasury because of these transactions. Also, the transactions received adverse publicity when entire college campuses and even U.S. Navy battleships were suggested as possible lease candidates.

For more than a year the Congress deliberated and finally, on July 18, 1984, President Reagan signed into law the Act, which significantly alters the tax breaks in this area.

The Act

Under the Act, most property owned by, leased to, or otherwise used by a tax-exempt entity will not be eligible for the investment tax credit or for accelerated cost recovery over the normal ACRS recovery periods. For real property the recovery period cannot be shorter than 40 years. For personal property the recovery period cannot be less than 125 percent of the lease term. Since other real estate can be written off over fifteen years (eighteen years under the Act) and personal property over five years, these changes rather dramatically reduce the economic attractiveness of these arrangements.

What Is a Tax-Exempt Entity?

A tax-exempt entity includes the U.S. government, a state or local government, a not-for-profit entity, a cooperative, and any organization that was exempt from tax at any time within the five-year period prior to the lease. The Act also applies to foreign governments, international organizations, and certain foreign persons. A discussion of these provisions is beyond the scope of this newsletter. However, certain entities are specifically excluded from the Act's restrictions, including:

- Farmers' cooperatives,
- Federal Home Loan Mortgage Corporation (Freddie Mac), which is made a taxable entity by the Act, and
- Formerly tax-exempt entities, such as rural electric cooperatives, that make an irrevocable election to be taxable during the so-called "tax-exempt use period." This period extends 15 years beyond the recovery period for the property. These entities also must agree to pay tax on certain arbitrage profits for the first taxable year in which they use the property under the lease.

Equipment and Other Personal Property

General Rule

The cost of personal property subject to these restrictions would have to be recovered using straight-line depreciation (with no salvage value) over the greater of 125 percent of the lease term or 12 years (or, if available, the class life established by the Treasury Department under the asset depreciation range [ADR] system). A taxpayer may continue to make a straight-line ACRS election, but only if the resulting recovery period is longer than that determined under the Act. Therefore, this exception is of limited utility.

Observation

The Treasury Department is authorized to prescribe an ADR class life for property that does not presently have one. Unfortunately, it is not clear who will prescribe these lives, since the Office of Industrial Economics, which had been responsible for these determinations, was abolished as part of the federal government's most recent effort at expenditure reduction.

Exemptions

Three types of lease transactions are exempt from the Act's restrictions, and thus may be depreciated using the more rapid ACRS methods.

Short-term leases: The first exception is where the personal property is leased to the tax-exempt entity for a period (including renewal options) of the greater of one year or 30 percent of the property's present class life, if available (but not to exceed three years). If the property has no present class life, the lease term (including renewal options) must be less than three years.

Observation

While this exception is primarily directed at short-term leases of such items as automobiles, a one-year lease, which is allowed in all cases, can be quite significant for shorter-lived property.

Unrelated trade or business rule: The second exception is for any property predominantly used by a tax-exempt entity in situations where the income from that activity is subject to federal income tax.

High technology equipment: Probably the most significant is the third exception, for high technology equipment with a lease term of five years or less. Qualifying equipment may fall into three categories: computer equipment, telephone station equipment, or medical equipment.

- *Computer or peripheral equipment:* Exempted property includes a computer and any related peripheral equipment, including an auxiliary machine (whether on-line or off-line) that is designed to be placed under the control of a central processing unit of a computer. However, the term does not include equipment that is an integral part of noncomputer property, typewriters, calculators, copiers, and similar equipment, and property used primarily for entertainment or amusement.
- *Telephone station equipment:* In order for high technology telephone station equipment to be exempt from the Act's restrictions, it must be installed on the customer's premises.
- *Medical equipment:* The high technology medical equipment exempted from the Act means primarily electronic or computer-based equipment used in the diagnosis or treatment of patients in a laboratory, medical, or hospital environment, such as a CAT scan.

Observation

High technology equipment that is leased for more than five years may still be recovered over a five-year period.

It should be noted that even these three types of property will be subject to the Act's restrictions if the equipment purchase was financed with tax-exempt bonds, if the sale-leaseback occurs more than three months after the acquisition of the property by the user, or if the user is the United States. Also, the exception does not apply to medical or telephone equipment that the Treasury Department determines, pursuant to final regulations, is not subject to rapid obsolescence.

Observation

The rapid obsolescence standard does not apply to computer equipment. In any event, the rule only applies to property placed in service after the Treasury promulgates final regulations. Given the tremendous burden placed by the Act on the Treasury Department to issue regulations, it may be a while before proposed, much less final, regulations are issued.

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Real Property

The real property ACRS restrictions do not apply if a tax-exempt entity leases 35 percent or less of the building. Also, even if it does lease more than 35 percent, one of the following conditions must be met:

- the property was financed with tax-exempt obligations and the user participated in such financing;
- the lease contains a fixed or determinable price purchase option;
- the property was owned or used by the tax-exempt entity prior to the lease (unless the sale-leaseback occurred within three months of the tax-exempt entity's first use); or
- the lease term exceeds 20 years.

The Act's restrictions do not apply to short-term leases of less than three years or to property used by a tax-exempt entity in an activity that is subject to federal income tax.

Observation

The lease term computation for real estate does not include renewal options at fair market value if the rent is determined at the time of renewal.

Rehabilitation Tax Credit

A tax credit of up to 25 percent may be allowed for the cost of rehabilitating older or historic structures. However, the Act denies this credit for any portion of a building that is used by a tax-exempt entity under one of the conditions that would result in the application of the restricted cost recovery deductions.

Observation

The rehabilitation tax credit is, therefore, not denied in all cases where a tax-exempt lessee is involved. As noted previously, a lease to a tax-exempt entity of less than 20 years may not be subject to the Act's restrictions.

Service Contract Arrangements

The regular investment tax credit is generally denied where property is leased to or used by a tax-exempt entity (except for casual or short-term leases of generally less than six months' duration). In many situations, however, property is not leased to a tax-exempt entity. Rather, property is used by a company in the course of providing a service to the tax-exempt entity. Both the IRS and the courts have sanctioned the allowance of the investment tax credit for property in a properly structured service arrangement. Apparently, the Congress conceived that what was being called a service contract was in many instances more properly treated as a lease. The Act lists specific factors that indicate the existence of a lease rather than a service contract, including:

- the tax-exempt entity has possession and control of the property;
- the tax-exempt entity has significant economic or possessory interests in the property;
- the total contract price does not substantially exceed the rental value of the property for the contract period;
- the property is used exclusively by the tax-exempt entity; and
- the tax-exempt entity is obligated to continue to make payments whether or not it fully utilizes the services.

The Act also provides that these factors should be used to analyze whether any arrangement, including a partnership, should more properly be treated as a lease.

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Editor, John R. Miller

Observation

While this provision was meant to clarify the service contract versus lease area, it is obvious that it continues the factual determination, as under prior law. Thus, if the service arrangement is properly structured, it should be recognized as such even under the Act. Also, the Act does not change the necessity of structuring the agreement so that the service provider is the owner of the equipment for federal income tax purposes. Thus, if the benefits and burdens of ownership with respect to the property fall on the tax-exempt entity, i.e., because of the presence of a put, the form of the transaction may be disregarded in spite of compliance with the Act's service contract provisions.

Exceptions from Service Contract Limitations

Special rules are provided for solid waste disposal, cogeneration, alternate energy, and water treatment works facilities. Arrangements with such qualified facilities are treated as service contracts as long as the tax-exempt entity does not operate the facility or bear any significant financial burden if there is nonperformance under the contract (other than temporary shutdowns for maintenance, repairs, or capital improvements). Also, the tax-exempt entity cannot have an option to purchase or be required to purchase the facility at a fixed or determinable price (other than fair market value). Finally, the tax-exempt entity cannot receive any significant financial benefit if the operating costs fall below specified amounts, other than reductions due to increased efficiency or production or the recovery of energy or other products. Nevertheless, the tax-exempt entity can retain certain rights without causing a problem. The tax-exempt entity can have the right to inspect the facility or to exercise its sovereign power, to act in event of breach of contract, or to be allocated any financial benefit or burden in the event of any change in the law.

Solid waste disposal facility: A facility qualifies as a solid waste disposal facility if it provides solid waste disposal services for residents of one or more local governmental units and if substantially all of the solid waste processed at such facility is collected from the general public.

Cogeneration facility: This is defined as a facility that uses the same energy source fo the sequential generation of electrical or mechanical power in combination with steam, heat, or other forms of useful energy.

Alternative energy facility: The facility produces electrical or thermal energy, and the primary energy source for the facility is not oil, natural gas, coal, or nuclear power.

Water treatment works facility: This includes only treatment works within the meaning of section 212(2) of the Federal Water Pollution Control Act.

Low-Income Housing

The service contract rules do not apply to low-income housing operated by or for certain tax-exempt organizations where at least 80 percent of the housing units are leased to low-income tenants.

Special Rules

Related Entities Defined

The United States, each state, and each United States possession are treated as separate sovereign authorities. Also, governmental units or agencies are treated as related if they derive their powers, rights, and duties from the same sovereign authority, or if they have significant common purposes and membership or substantial common direction or control. In addition, under a catch-all rule, entities will be treated as related if the transaction is part of an attempt by such entities to avoid the Act's restrictions.

Partnership-owned Property

If a tax-exempt entity is a partner in a partnership and the allocation of all partnership items, including the tax benefits, is not proportional to the tax-exempt entity's interest in the partnership, the Act's restrictions will apply to the tax-exempt entity's proportionate share of the property. The proportionate share is defined as the entity's share of partnership items of income or gain, whichever results in the largest share.

Property Leased to Partnership

Where property is leased to a partnership, the Act's restrictions will apply to the extent of a tax-exempt entity's interest in the partnership. Similar rules are to apply to tiered partnerships and to other types of pass-through entities.

Effective Date

The Act generally applies to property placed in service after May 23, 1983, and leased to a tax-exempt entity after that date. Transition rules are provided for property used by a tax-exempt entity pursuant to a binding lease entered into no later than May 23, 1983, and for property that a tax-exempt entity was required to acquire, construct, or rehabilitate pursuant to a contract binding on that date. The Act provides for more than 20 other transition rules, each of which is unique, complex, and keyed to a different date and type of action. Extreme caution must be exercised before reliance is placed on one of these special rules.

Conclusion

Although the Act's restrictions are quite severe and, where applicable, will alter the economics of specific transactions, opportunities remain to structure lease or service contract arrangements with tax-exempt entities. If properly structured, either with equipment that is exempted from the Act, or for a term of years that does not bring the Act into effect, the property can still qualify for accelerated ACRS treatment. Also, in certain circumstances a service contract arrangement can still provide the additional benefit of the investment tax credit. Thus, the Act still allows significant alternatives to direct acquisition for local governments and not-for-profit organizations that can help them to finance portions of their capital acquisition needs.

Appendix C

PRIVATE FINANCING MODEL: MOST LIKELY SCENARIO

EVALUATION OF PRIVATIZATION ALTERNATIVES

	PAGE	DESCRIPTION
PAGE 1	1	INDEX OF SCHEDULES
	2	FINANCING OPTION DESCRIPTION
		MENU FOR OPTION SELECTION
	3	SUMMARY OF U.S. AND MUNICIPAL COSTS
	4	ASSUMED FACILITY COSTS
		FINANCING ASSUMPTIONS FOR OPTIONS
		CASH FLOW REQUIREMENTS AND SIZING
	5	SENSITIVITY ANALYSIS MENU
	6	NEEDS COST ANALYSIS MENU
	7	LOAN/DEPRECIATION SCHEDULES
	8	OPTION 1-PUBLIC FINANCING
		OPTION 2-GRANT & PUBLIC FINANCING
	9	OPTION 3-CASH FLOW SCHEDULES
		OPTION 3-INCOME STATEMENTS
	10	OPTION 3-PV CALCULATIONS
		OPTION 3-PV CALCULATIONS
	11	OPTION 4-CASH FLOW SCHEDULES
		OPTION 4-INCOME STATEMENT
	12	OPTION 4-COST TO U.S. FOR TAX-EXEMPT BORROWING
		OPTION 4-COST FO CAPITAL CHARGES TO MUNICIPALITY
		OPTION 1-4-PV OF OAN COSTS TO MUNICIPALITY

PAGE 3

EXHIBIT 2
SUMMARY OF U.S. AND MUNICIPAL COSTS RELATED TO PUBLIC AND PRIVATE FINANCING OF WASTEWATER TREATMENT FACILITIES

FINANCING OPTIONS	APPROXIMATE COST TO US TREASURY	APPROXIMATE COST TO MUNICIPALITY
01: 100% PUBLIC FINANCING	1,613	:3,000
02: 55% GRANT & PUBLIC FINANCING	3,596	7,635
03: PRIVATE MUNICIPAL LEASE	(1,570)	14,510
04: PRIVATE SERVICE AGREEMENT	3,264	7,770

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SENSITIVITY ANALYSIS

SENSITIVITY TESTS CAN BE RUN IN AN AUTOMATED MODE USING KEYBOARD ACCESS.

1. SELECT VARIABLE FOR SENSITIVITY — 0
   - -DO NOT RUN SENSITIVITY = 0
   - -INTEREST RATE = 1
   - -ROI = 2
   - -TAX BRACKET = 3
   - -GRANT ELIGIBILITY = 4
   - *ENTER 'ALT M' TO SET MOST LIKELY FINANCIAL ASSUMPTIONS.

2. INPUT DESIRED DATA BELOW TO BE ANALYZED.

	—INPUTS—			
	01	02	03	04
*INTEREST RATE SENSITIVITY				
-CORPORATE RATE	18.00%	12.00%	15.00%	18.00%
-COST FEDERAL FUNDS	6.00%	9.71%	12.94%	16.17%
-MUNICIPAL TAX-EXMPT	7.55%	9.73%	13.01%	16.28%
*RETURN ON INVESTMENT	18.00%	28.00%	38.00%	48.00%
*INVESTOR BRACKET	25.00%	35.00%	45.00%	55.00%
*GRANT ELIGIBILITY	25.00%	43.00%	64.00%	75.00%

3. ENTER 'ALT S' TO RUN SENSITIVITY FOR ONE OF ABOVE SCENARIOS.

PAGE 4

EXHIBIT 3
CASE RODRIGO
REDUCED FACILITY COSTS AND PROPERTY CLASSES

PROPERTY	CAPITAL COSTS	USEFUL LIFE	MCRS PROPERTY	OTHER REP. SCHEDULE
BUILDING	1500	30	18 YEAR	40-YEAR (STRAIGHT LINE)
LAND	300		NA	
EQUIPMENT	4000	15	5 YEAR	20 YEAR (125% LOSES)
STRUCTURES	4000	30	5 YEAR	20 YEAR (125% LOSES)
*TOTAL PROJECT COST	10,000			

EXHIBIT 4
CASE RODRIGO: FINANCING ASSUMPTIONS FOR OPTIONS

-PRIVATE FINANCING-		-PUBLIC FINANCING-		-PROJECT COSTS-		
INVESTOR TAX BRACKET =	46.00%	FEDERAL MONEY COST =	5.71%	EPA ELIGIBLE =	42.00%	= 4200
INVESTOR EQUITY =	20.00	TAX-EXMPT RATE =	5.73%	EPA INELIGIBLE =	32.00	= 3700
REQUIRED ROI(AFT.TAX) =	20.00%	MATURITY PERIOD =	20 YEARS	LOCAL FINANCING =		7425
INTEREST RATE(100) =	5.73%			(WITH 25% GRANT)		
MATURITY =	20 YEARS			PURCHASE PRICE (YR 10) =	75.00	7500
TTC ELIGIBLE COST =	0000			PURCHASE PRICE (YR 20) =	30.00	3000
CORPORATE RATE =	12.00%			PLANT OAM COST =	750 PER YEAR	
				OAM INFLATION =	6.00 PER YEAR	
ROTE USED IN MODEL =	12.00					

EXHIBIT 5
ROLE FOR CASH FLOW REQUIREMENTS
TYPE IN "ALT P" FOR AUTOMATIC CALC.

OPTION 3		OPTION 4	
CASH INFLOW =	1671	CASH INFLOW =	855
NET CASH FLOW =	2000	NET CASH FLOW =	1955
INVESTOR EQUITY =	2000	INVESTOR EQUITY =	2000

NEEDS COST ANALYSIS

1. SELECT PROJECT COST DATA FOR ANALYSIS. 3

*TOTAL US NEEDS: CONSTRUCTION OF NEW FACILITIES WHERE NO FACILITY EXISTS. = 1

*TOTAL US NEEDS: CONSTRUCTION OF NEW FACILITIES VALUED OVER $1 MILLION. = 2

*$10 THOUSAND HYPOTHETICAL FACILITY = 3

2. SELECT POPULATION SIZE FOR ANALYSIS. 6

		BACKLOG	2000
<2500	=	1	7
2500-10000	=	2	8
10-50000	=	3	9
50-150000	=	4	10
>150000	=	5	11
TOTAL	=	6	12

3. ENTER 'ALT #' TO LOAD DATA.

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EXCERPT 6

LOAN REPAYMENT AND DEPRECIATION SCHEDULE PER $1

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
-PRIVATE BORROWING-																					
PAYMENT		0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357
INTEREST		0.1284	0.1163	0.1163	0.1144	0.1109	0.1054	0.1063	0.1032	0.0995	0.0954	0.0909	0.0825	0.0734	0.0713	0.0661	0.0575	0.0448	0.0296	0.0222	0.0143
PRINCIPAL		0.0135	0.0255	0.0174	0.0155	0.0210	0.0265	0.0271	0.0307	0.0344	0.0385	0.0431	0.0515	0.0606	0.0643	0.0641	0.0676	0.0803	0.0953	0.1067	0.1175
ACC.PAYMENT.		0.0135	0.0254	0.0428	0.0583	0.0793	0.1058	0.1329	0.1637	0.1981	0.2366	0.2797	0.3312	0.3918	0.4561	0.5202	0.5878	0.6681	0.7634	0.8701	1.0044
-PUBLIC BORROWING-																					
PAYMENT		0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153	0.1153
INTEREST		0.0973	0.0955	0.0936	0.0915	0.0890	0.0862	0.0829	0.0790	0.0746	0.0697	0.0643	0.0584	0.0521	0.0453	0.0384	0.0320	0.0258	0.0195	0.0129	0.0062
PRINCIPAL		0.0180	0.0198	0.0217	0.0238	0.0261	0.0286	0.0314	0.0345	0.0379	0.0415	0.0455	0.0500	0.0549	0.0602	0.0661	0.0725	0.0795	0.0873	0.0958	0.1051
ACC.PAYMENT.		0.0180	0.0378	0.0594	0.0832	0.1093	0.1380	0.1694	0.2039	0.2417	0.2832	0.2288	0.3788	0.4337	0.4938	0.5599	0.6324	0.7119	0.7992	0.8949	1.0000
-COST OF TAX-EXEMPT-																					
PAYMENT & PRINCIPAL		0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357	0.1357
INTEREST		0.1284	0.1163	0.1163	0.1144	0.1109	0.1054	0.1063	0.1032	0.0995	0.0954	0.0909	0.0865	0.0734	0.0713	0.0661	0.0575	0.0448	0.0296	0.0222	0.0143
PRINCIPAL		0.0135	0.0255	0.0174	0.0155	0.0210	0.0265	0.0271	0.0307	0.0344	0.0385	0.0431	0.0431	0.0606	0.0643	0.0641	0.0676	0.0803	0.0953	0.1067	0.1175
ACC.PAYMENT.		0.0135	0.0254	0.0428	0.0583	0.0882	0.1135	0.1406	0.1797	0.2201	0.2636	0.3067	0.3549	0.4155	0.4798	0.5439	0.6115	0.6918	0.7871	0.8938	1.0081
LOAN TO TREASURY		0.0027	0.0024	0.0020	0.0016	0.0012	0.0007	0.0001	0.0195	0.0188	0.0180	0.0172	0.0162	0.0151	0.0139	0.0125	0.0110	0.0092	0.0072	0.0051	0.0027
-FUTURE BUDGET =	16.5%																				
-FOR REDUCTION SCHEDULE-																					
PROPERTY CLASS																					
3-YEAR	0.33	0.38	0.37																		
5-YEAR	0.15	0.22	0.21	0.21	0.21																
10-YEAR	0.06	0.14	0.12	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1										
15-YEAR	0.05	0.1	0.09	0.08	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06				
20-YEAR OLTER	0.05	0.08	0.07	0.07	0.062	0.056	0.053	0.049	0.043	0.037	0.030	0.023	0.015	0.007							
-OTHER DEPRECIATION SCHEDULES-	0.933	0.815	0.726	0.644	0.565	0.541	0.489	0.441	0.396	0.354	0.315	0.279	0.253	0.253	0.253	0.253	0.253	0.253	0.253	0.253	0.253
LOAN OF LAND	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
40-YEAR	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025

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EXHIBIT 7
OPTION 61: PUBLIC FINANCING

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
COST TO US																					
COST OF TAX-EXEMPT		227	224	220	216	212	207	201	195	188	180	172	162	151	139	125	110	92	73	51	27
PV OF FINANCING		207	186	167	149	133	119	105	93	82	71	62	53	45	38	31	25	19	14	9	4
TOTAL PV	1,613																				

EXHIBIT 8
OPTION 62: EPA GRANT & PUBLIC FINANCING

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
COST TO US																					
COST OF TAX-EXEMPT		172	171	168	163	162	158	154	149	144	138	131	124	115	106	95	84	70	55	39	21
PV OF FINANCING		158	142	127	114	102	91	80	71	62	55	47	41	35	29	24	19	15	11	7	3
TOTAL PV	1,231																				
55% GRANT	2,365																				
TOTAL SUBSIDY	3,596																				

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EXHIBIT 9
OPTION 63: MUNICIPAL LEASE FINANCING
PRO FORMA CASH FLOW STATEMENT

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CASH INFLOW																					
LEASE PAYMENTS(REVE)		1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673
USER CHARGES		750	810	875	945	1,020	1,102	1,190	1,285	1,388	1,499	1,619	1,749	1,889	2,040	2,203	2,379	2,569	2,775	2,997	3,237
*SUBTOTAL		2,423	2,483	2,548	2,618	2,693	2,775	2,863	2,958	3,061	3,172	3,292	3,422	3,562	3,713	3,876	4,052	4,242	4,448	4,670	4,910
CASH OUTFLOW																					
EQUITY *	2,000																				
O&M		750	810	875	945	1,020	1,102	1,190	1,285	1,388	1,499	1,619	1,749	1,889	2,040	2,203	2,379	2,569	2,775	2,997	3,237
PRINCIPAL		111	124	139	156	175	196	219	245	275	309	345	386	433	484	543	609	681	762	854	956
INTEREST		960	947	932	913	896	873	852	826	796	763	726	685	638	587	528	463	390	309	217	113
*SUBTOTAL	2,000	1,821	1,881	1,946	2,016	2,091	2,173	2,261	2,356	2,459	2,570	2,690	2,820	2,960	3,111	3,274	3,450	3,640	3,846	4,068	4,306
NET CASH FLOW BEF.TAX		602	602	602	602	602	602	602	602	602	602	602	602	602	602	602	602	602	602	602	602
TAX BENEFITS		(164)	(185)	(139)	(152)	(166)	(179)	(194)	(210)	(227)	(245)	(264)	(286)	(309)	(335)	(363)	(395)	(430)	(469)	(509)	(552)
CASH FLOW AFT.TAX		438	416	463	450	436	422	406	392	375	357	338	316	293	267	239	207	172	133	90	32
PV CASH FLOW AFT.TAX		365	330	304	277	253	231	214	191	172	158	145	135	127	121	115	107	100	91	80	67
EQUITY VS.CASH FLOW	2,000	2,045																			

EXHIBIT 10
OPTION 63: MUNICIPAL LEASE FINANCING
PRO FORMA INCOME STATEMENT

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
TOTAL REVENUES																					
LEASE PAYS.		1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673
USER CHARGES		750	810	875	945	1,020	1,102	1,190	1,285	1,388	1,499	1,619	1,749	1,889	2,040	2,203	2,379	2,569	2,775	2,997	3,237
*SUBTOTAL		2,423	2,483	2,548	2,618	2,693	2,775	2,863	2,958	3,061	3,172	3,292	3,422	3,562	3,713	3,876	4,052	4,242	4,448	4,670	4,910
EXPENDITURES																					
O&M		750	810	875	945	1,020	1,102	1,190	1,285	1,388	1,499	1,619	1,749	1,889	2,040	2,203	2,379	2,569	2,775	2,997	3,237
DEPRECIATION		256	256	439	427	417	407	399	391	384	378	372	367	363	359	355	351	348	344	339	336
INTEREST		964	947	932	913	896	873	852	826	796	763	726	685	638	587	528	463	390	309	217	113
*SUBTOTAL		2,068	2,066	2,243	2,287	2,334	2,385	2,441	2,502	2,569	2,640	2,718	2,801	2,890	2,985	3,086	3,194	3,309	3,429	3,554	3,686
INCOME BEF.TAX		356	273	302	331	360	390	422	456	493	532	574	621	672	728	790	858	934	1,019	1,116	1,224
TAX PAYABLE																					
-TAX		164	185	139	152	166	179	194	210	227	245	264	286	309	335	363	395	430	469	522	570
-ITC																					
PV TAX PAYABLE *		149	145	105	105	104	103	102	100	98	97	95	94	93	91	90	90	89	88	90	89
TOTAL PV TAX *	1,970																				

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EXHIBIT 11
OPTION 63: MUNICIPAL LEASE FINANCING
PV OF TAX-EXEMPT BORROWING

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
=COST TO US=																					
COST OF TAX-EXEMPT		182	179	176	172	170	166	161	156	151	144	137	130	121	111	100	86	74	58	41	22
PV OF FINANCING		166	149	133	119	107	93	84	77	63	57	50	43	36	30	25	20	15	11	7	3
TOTAL PV	1,290																				

EXHIBIT 12
OPTION 63: MUNICIPAL LEASE FINANCING
PV OF COST TO MUNICIPALITY

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
LEASE PAYMENTS		1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673
USER CHARGES																					
=SUBTOTAL		1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673	1,673
=SUBTOTAL PV		1,525	1,389	1,264	1,154	1,052	958	872	796	725	661	602	549	500	456	416	379	345	315	287	261
=TOTAL PV	14,310																				

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EXHIBIT 13
OPTION 64: PRIVATE SERVICE AGREEMENT
=PRO FORMA CASH FLOW STATEMENT=

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CASH INFLOW																					
CAPITAL CHARGES (SELVES)		896	896	896	896	896	896	896	896	896	896	896	896	896	896	896	896	896	896	896	896
O&M CHARGES		750	810	875	945	1,020	1,102	1,190	1,285	1,388	1,499	1,619	1,749	1,889	2,040	2,203	2,379	2,569	2,775	2,997	3,237
RESALE											0										0
=SUBTOTAL		1,646	1,706	1,771	1,841	1,916	1,998	2,086	2,181	2,284	2,395	2,515	2,645	2,785	2,936	3,099	3,275	3,465	3,671	3,892	4,133
CASH OUTFLOW																					
EQUITY	2,000																				
O&M		750	810	875	945	1,020	1,102	1,190	1,285	1,388	1,499	1,619	1,749	1,889	2,040	2,203	2,379	2,569	2,775	2,997	3,237
PRINCIPAL		111	124	139	156	175	196	219	245	275	308	345	386	433	484	543	608	681	762	854	955
INTEREST		964	947	932	915	.896	875	852	826	796	763	705	645	630	587	508	463	290	309	217	115
=SUBTOTAL	2,000	1,821	1,881	1,946	2,016	2,091	2,173	2,261	2,356	2,459	2,570	2,670	2,809	2,954	3,111	3,274	3,450	3,640	3,846	4,066	4,308
NET CASH FLOW BEF.TAX		(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)	(175)
TAX BENEFITS		1,421	853	805	792	779	31	16	8	(16)	(34)	(54)	(75)	(99)	(125)	(153)	(185)	(219)	(258)	(301)	(351)
CASH FLOW AFT.TAX		1,246	678	630	617	604	(144)	(159)	(173)	(191)	(209)	(229)	(254)	(274)	(300)	(328)	(360)	(395)	(433)	(467)	(526)
PV CASH FLOW AFT.TAX		1,030	471	353	298	243	(48)	(44)	(41)	(37)	(34)	(31)	(28)	(25)	(23)	(21)	(19)	(18)	(16)	(15)	(14)
EQUITY VS.CASH FLOW	2,000	1,998																			

EXHIBIT 14
OPTION 64: PRIVATE SERVICE AGREEMENT
=PRO FORMA INCOME STATEMENT=

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
TOTAL REVENUES																					
CAPITAL CHARGES		896	896	896	896	896	896	896	896	896	896	896	896	896	896	896	896	896	896	896	896
O&M CHARGES		750	810	875	945	.1,020	1,102	1,190	1,285	1,388	1,499	1,619	1,749	1,889	2,040	2,203	2,379	2,569	2,775	2,997	3,237
=SUBTOTAL		1,646	1,706	1,771	1,841	1,916	1,998	2,086	2,181	2,284	2,395	2,515	2,645	2,785	2,936	3,099	3,275	3,465	3,671	3,892	4,133
EXPENDITURES																					
O&M		750	810	875	945	1,020	1,102	1,190	1,285	1,388	1,499	1,619	1,749	1,889	2,040	2,203	2,379	2,569	2,775	2,997	3,237
DEPRECIATION		1,206	1,084	1,715	1,703	1,653	87	79	71	64	58	52	47	43	39	35	31	28	25	0	0
INTEREST		964	947	932	915	896	875	852	826	796	763	705	645	630	587	508	463	290	309	217	115
=SUBTOTAL		2,996	2,760	3,521	3,563	3,610	2,065	2,121	2,182	2,249	2,320	2,376	2,441	2,570	2,663	2,746	2,874	2,988	3,109	3,214	3,352
INCOME BEF.TAX		(1,350)	(1,054)	(1,750)	(1,722)	(1,693)	(67)	(35)	(1)	35	75	117	164	215	271	333	401	477	562	679	781
TAX PAYABLE																					
=TAX		(621)	(853)	(805)	(792)	(779)	(31)	(16)	(8)	16	34	54	75	99	125	153	185	219	258	302	350
=ITC		(896)																			
=RESALE OF FACILITY											0										0
PV TAX PAYABLE =		(1,293)	(705)	(610)	(547)	(490)	(18)	(8)	(3)	7	14	19	25	30	34	38	42	45	49	54	58
[illegible]	(1,[illegible])																				
[illegible]	[illegible]																				

EXHIBIT 15
OPTION #4: PRIVATE SERVICE AGREEMENT
COST TO US FOR TAX-EXEMPT BORROWING

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
AND I 20 YR. PURCHASE OPTION																					
COST OF TAX-EXEMPT		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
-NPV OF FINANCING	0																				
#10 YR PURCHASE OPTION																					
COST OF TAX-EXEMPT		0	0	0	0	0	0	0	0	0	0	179	164	163	162	139	135	131	146	141	135
-NPV OF FINANCING	299																				

SUMMARY OF US COSTS	
-NPV OF TAX PAYABLE	2,854
-NPV OF TAX-EXEMPT FINANCING	0
TOTAL	2,854

EXHIBIT 16
OPTION #4: PRIVATE SERVICE AGREEMENT
COST OF CAPITAL CHARGES TO MUNICIPALITY

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
AND I 20 YR PURCHASE																					
CAPITAL CHARGES		8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
-NPV OF CHARGES	7,770																				
#10 YR. PURCHASE																					
CAPITAL CHARGES		8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
-NPV OF CHARGES	7,694																				

NATIONAL OVERVIEW OF WATER QUALITY BENEFITS
OF THE CONSTRUCTION GRANTS PROGRAM

by

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EXECUTIVE SUMMARY

Under the Clean Water Act, all municipalities with point dischargers must provide wastewater treatment for present and projected populations in order to meet effluent limitations and water quality standards. Effluent limitations for publically owned treatment works (POTWs) are set at secondary treatment, with additional treatment potentially required if water quality standards for the receiving water are not met. According to EPA's biennial survey of the municipal needs to meet these requirements, $92.6 billion of capital would be required to meet present needs. EPA's National Municipal Policy requires that as many needs as possible be met by 1988, and through the provision of construction grants, EPA has played a significant role in achieving this goal. However, even with EPA's substantial contribution in assisting municipal facilities in complying with water quality regulations, it is unlikely that all needs will be met by 1988.

Two questions arise: (1) can funding be accelerated to meet POTW construction needs sooner, and (2) are the benefits of these needs justified in relation to their costs. The first question is already being addressed by EPA's POTW Construction Grant Task Force. This study endeavors to find a partial answer to the second question by providing a national overview of the water quality benefits of the Construction Grants Program. Specifically, four objectives were identified:

1) determine what percentage of projects in the 1982 Needs Survey are (or would be) located on water bodies currently meeting water quality standards;

2) describe any general relationships between different types of project: costs, population served, location, and other parameters and whether or not the corresponding receiving water is currently meeting water quality standards;

3) analyze whether projects located on waters not meeting standards for their designated uses would contribute to significant water quality improvements; and

4) recommend improvements in the grants process which would enhance the water quality benefits of the Construction Grants Program.

The analysis covered all construction grant categories, but emphasized secondary and advanced treatment facilities. A stratified sample of these projects were selected from the Needs Survey to insure representation from

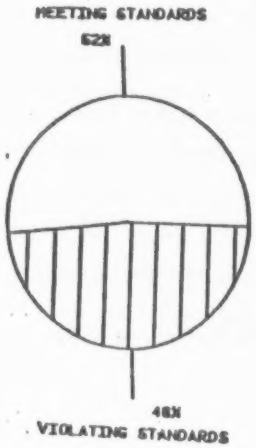
each of the following categories:

Geographic Region	Cost Magnitude	Treatment Level
Northeast	Large (> 5,000 K)	Secondary
South	Medium (500 K-5,000 K)	Advanced
West	Small (< 500 K)	

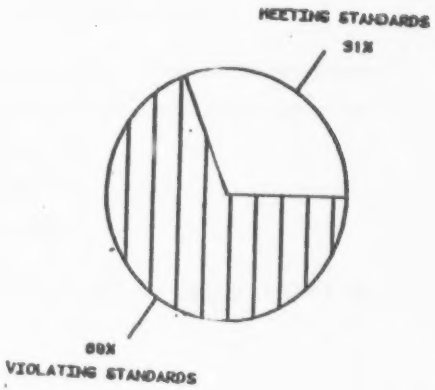
After the initial sample was selected some of the sample facilities were deleted due to insufficient data. This left a total of 100 sample facilities for which data were collected on the receiving water use designation and numerical water quality data. Based on this information the receiving water quality status for each facility was then defined as either meeting standards or not meeting standards for its designated use. The final data base was then statistically tested to determine whether or not it remained representative of the population. These tests were affirmative and provided the justification for directly extrapolating sample results to the entire Needs population.

Analysis of the sample revealed that 52 percent or 8,200 secondary and advanced treatment facilities are or will be located on receiving waters already meeting water quality standards. These represent 31 percent or $7.5 billion of the $24.1 billion of needs for treatment facilities. The analysis did not quantitatively estimate analogous results for the $68.5 billion requested for non-treatment municipal projects.

SAMPLE ANALYSIS RESULTS



NUMBER OF FACILITIES
(TOTAL = 15,700)



TOTAL CAPITAL COST
(TOTAL = $24.1 MILLION)

Further analysis was performed to determine which variables in the survey data base correlated with the water quality status of the receiving water. High treatment levels, low effluent flow, smaller populations served, and smaller needs generally correlated with better water quality.

Finally, six sample facilities located on receiving waters not meeting the water quality standards for their use designation were analyzed to determine if the construction of the facility would have a significant effect on meeting water quality standards.* For three facilities construction would have a negative effect on the quality of the receiving water. This occurred at sites where a new facility would replace a zero discharge situation or significantly enlarge an existing discharger. However, this analysis did not consider the regional water quality benefits of a particular project nor did it consider other non-water quality benefits of the construction. At the remaining three sites, significant water quality improvements were revealed by the modeling.

In general, the effects of non-treatment projects are limited to their influence on the operation of the treatment plant they serve. Infiltration/inflow correction and sewer rehabilitation (category III) tend to reduce excess flows to treatment plants and increase the predictability of those flows, thereby increasing the performance of the plant. New collector and interceptor sewers (category IV) are generally indicative of growth and therefore, result in increasing effluent flows which reduce water quality. However, their absence may cause degradation in the groundwater or a deterioration in sanitation. Combined sewer overflow (CSO) correction projects (category V) exhibit a trade-off between the cost of expanding treatment and/or holding facilities versus the water quality damage from direct discharge of untreated storm and sewer wastes during periods of wet weather.

Three recommendations and observations are offered as a result of this analysis:

1) although water quality improvements may be seen at sites located on good receiving waters, resources are probably more cost-effective when used at sites on poorer receiving waters where improved water quality will result. This would address more pressing problems sooner, and would increase the water quality benefits from limited construction grant funds. Since many POTWs are on waters meeting standards, this calls into question the cost-effectiveness of grant funds used to meet technology based requirements.

2) only treatment facilities (categories I and II) have a direct influence on water quality. The non-treatment facilities (categories III, IV, and V) influence water quality only to the extent that they affect the treatment plant they serve. Thus, their water quality benefits must be identified in this context.

*Although facilities located on waters meeting standards may further improve water quality (including ground water quality), these were not considered because the study only examined the contribution of projects toward achieving surface water goals.

3) given the comparison of needs with resources, implementation of the previous recommendations would not be sufficient to reduce estimates of high priority needs below historical funding levels. Budgetary decisions will still have to be made to insure that expenditures will address projects having the greatest benefits.

SECTION ONE
INTRODUCTION AND OBJECTIVES

Under the Clean Water Act, all municipal point dischargers must provide wastewater treatment for present and projected populations in order to meet effluent limitations and water quality standards. Effluent limitations for publically owned treatment works (POTWs) are set at secondary treatment, with additional treatment potentially required if water quality standards for the receiving water are not met. According to EPA's biennial survey of municipal needs (The Needs Survey) to meet these requirements, $92.6 billion of capital would be required to meet present needs. EPA's National Municipal Policy requires that as many of these needs as possible be met by 1988, and through the provision of construction grants, EPA has played a significant role in achieving this goal. However, even with EPA's substantial contribution in assisting municipal facilities in complying with water quality regulations, it is unlikely that all needs will be met by 1988.

The Needs Survey * includes 33,041 treatment plants, sewer systems, septic systems, and other miscellaneous waste disposal facilities. These can be divided into the following project categories (WPCF, 1983):

I. secondary treatment (ST) - costs for facilities (and outfall sewers) needed to achieve secondary levels of treatment;

IIA. advanced secondary treatment - incremental costs above category I needed to achieve advanced secondary levels of treatment (removal of biochemical oxygen demand (BOD) and suspended solids (SS) greater than 85% or 30 mg/l, but less than 95% or 10 mg/l);

IIB. advanced treatment (AT) - incremental costs above category IIA for facilities that require removal of carbonaceous and nitrogenous oxygen demands, phosphorus, ammonia, and nitrates, or removal of BOD and SS greater than 95% or 10 mg/l);

IIIA. infiltration/inflow correction - costs for correction of sewer system infiltration/inflow, preliminary sewer system analysis, or detailed sewer evaluation surveys;

IIIB. major rehabilitation of sewers - costs for major rehabilitation (including replacement) of sewers;

*Required every two years by the Clean Water Act, section 516(b)(1).

IVA. new collector sewers - costs for construction of new collector sewers and appurtenances to correct violations caused by raw discharges and to protect public health from such occurrences as malfunctioning septic tanks;

IVB. new interceptor sewers - costs for new interceptor sewers and transmission pumping stations for conveyance of wastewater from collector sewers to treatment facilities;

V. control of combined sewer overflow (CSO) - costs for prevention and control of bypassing untreated wastes from combined sewers; and

VI. control of stormwater runoff - costs for control and treatment of stormwater. Facilities within this category are not eligible for grants and will not be discussed further.

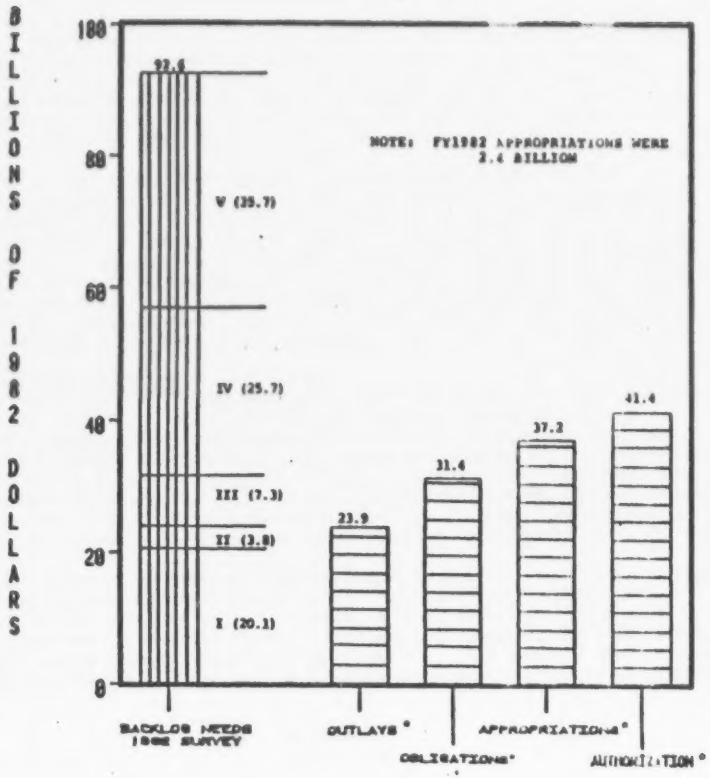
The $92.6 billion in backlog needs is divided among these categories as shown in Figure 1. The requested funds are needed for the construction of new facilities, replacement of existing facilities, or the enlargement or upgrade of existing facilities though 1981 amendments to the Clean Water Act limit funding for reserve capacities. The magnitude of reported needs are compared with outlays, obligations, appropriations and authorizations over the life of the construction grants program in Figure 1. Since 1972 EPA has granted $23.9 billion, or the equivalent of 26 percent of the remaining current needs. Amounts obligated and appropriated are larger, but even authorizations of ($41.4 billion) represent 45 percent of remaining needs.

The 1981 amendments to the Clean Water Act reduced the Federal funding share of construction grants projects from 75 percent to 55 percent, spreading available funds to a larger number of facilities, while requiring greater initial commitments from other sources. Furthermore, grant eligibility after October 1, 1984 will be limited to categories I, II, IIIA, and IVB. These categories include $35.4 billion in current needs. Other categories may receive funds at the Governor's discretion up to 20 percent of a state's allotment from the federal government. With these new rules, current funding levels ($2.4 billion in 1982), and municipalities contributing no more than the minimum 45 percent, current needs in categories I, II, IIIA, and IVB will not be met for ten years (assuming the Governors discretionary fund is exclusively used for categories IIIB, IVA, and V). In addition, over this period new needs would arise from population growth and obsolescence of existing facilities.

This situation provides an opportunity to review exactly what is meant by POTW "need". In general terms, a need represents a discrepancy between existing conditions and the attainment of certain benefits. In this case, the major benefits are: (1) the water quality improvement and protection of our Nation's waterways, and (2) the improvement and maintenance of waste disposal services. The expenditure of grant funds for a portion of capital costs is one means of realizing those benefits. Eliminating needs that exhibit negligible benefits is a means of reducing the discrepancy between needs and available resources.

Figure 1

MAGNITUDE OF THE CONSTRUCTION GRANTS PROGRAM



*TOTAL AMOUNTS FROM NOVEMBER 1972 THROUGH JUNE 1982.

These observations raise two questions: (1) can funding be accelerated to meet POTW construction needs sooner, and (2) are the benefits of these needs justified in relation to their costs. The first question is already being addressed by EPA's POTW Construction Grant Task Force. This study endeavors to find a partial answer to the second question by providing a national overview of the water quality benefits of the Construction Grants Program. Specifically, four objectives were identified:

1) determine what percentage of projects in the 1982 Needs Survey are (or would be) located on water bodies currently meeting water quality standards;

2) describe any general relationships between different types of projects, costs, population served, location, and other parameters and whether or not the corresponding receiving water is currently meeting water quality standards.

3) analyze whether projects located on waters not meeting standards for their designated uses would contribute to significant water quality improvements; and

4) recommend improvements in the grants process which would enhance the water quality benefits of the Construction Grants Program.

SECTION TWO
METHODOLOGY

The objectives specified in the previous section were achieved by following the five step methodology summarized in Figure 2. This approach was designed to be comprehensive in scope so that a national assessment of the water quality benefits of all construction grant categories could be completed. At the same time, the methodology included site-specific modeling analyses that allowed a detailed examination of the effect of POTW projects on water quality.

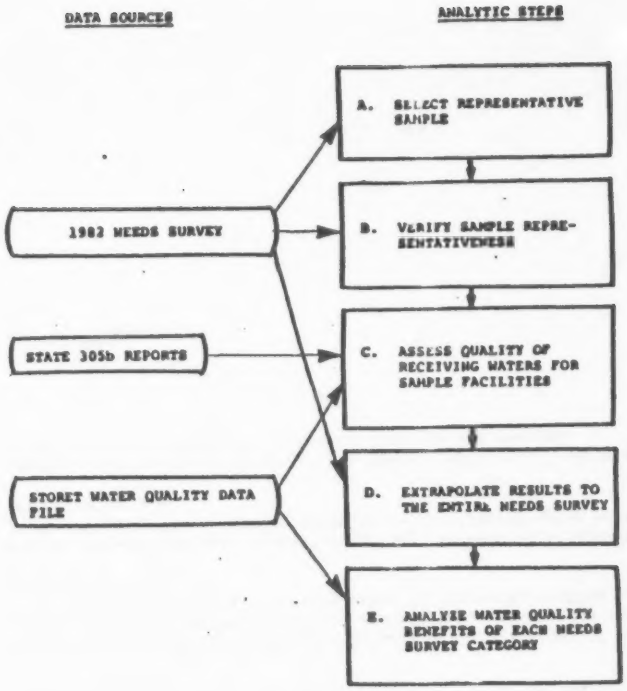
Since the Needs Survey is too large to assess water quality benefits for all projects, a stratified sample was selected for analysis (see section 3). This sample was selected to be representative of the Needs Survey, particularly with respect to geographic distribution, costs, population served, effluent flow, and treatment type (step A). The sample excluded projects in categories III and IV because they do not directly influence water quality. Once the sample was selected, analytical tests were performed to verify that the sample was statistically representative of the population (step B). The results of these tests are given in appendix B.

To a large extent, water quality benefits are dependent on the uses of a particular receiving water. Federal and state agencies have designated uses for most waters throughout the country. These designations generally depend on existing and planned uses, with some consideration given to existing water qualtiy. Examples of designations include the protection of aquatic life, recreation, and water supply. The next step (step C) was to ascertain the designated use(s) for each receiving water and determine whether or not the water quality standards for those uses were being met. State 305(b) reports* and the STORET water quality file were used for this purpose.

The results of the data collection effort for the sample were then extrapolated to the entire population (step D). Any correlations between receiving waters meeting or not meeting standards, and characteristics of the facilities themselves were analyzed and discussed. Finally, quantitative and qualitative analyses were performed to determine the water quality benefits of various types of projects (step E). Detailed modeling of treatment facilities (categories I and II) on receiving waters not meeting standards was performed. Qualitative discussion of other project types (categories III, IV, and V) was performed to yield similar information without costly modeling. For these non-treatment projects, the water quality benefits are related directly to their effects on treatment plant operations and indirectly to water quality.

*Section 305(b) of Clean Water Act require a biennial report of the status of waters in a state. However, the quality of these reports vary widely.

Figure 2. Methodology



SECTION THREE
SAMPLING

Because the scope of the Needs Survey is far too detailed for a comprehensive analysis of all facilities, a sampling strategy was designed by which a representative sample of projects would be chosen. This portion of the analysis was undertaken only for treatment facilities (categories I, IIA, IIB) and CSOs (category (V)). Category VI was not considered in the sample nor will it be covered in the water quality analysis because this category is not grant eligible. Categories III and IV were also excluded from the sample but for two different reasons: 1) these projects tend to have only indirect effects on water quality and exhibit other types of benefits such as improving service to customers and preventing groundwater contamination; and 2) to the extent they do affect water quality, these projects cannot be modeled assuming steady-state conditions, and therefore, a modeling of these projects would be more complex than was appropriate for this study. However, these categories are discussed briefly in the water quality analysis section.

Of 33,041 facilities in the 1982 Needs Survey data file, 16,613 either reported zero need to meet 1982 conditions or were not one of the project types to be sampled (I, II, or V). Of the remaining 16,428 facilities, 11,645 reported needs for upgrading only to secondary treatment. Another 3,714 claimed advanced secondary treatment (IIA) as their highest level of needed treatment, while 439 reported a need for advanced waste treatment (IIB). Finally, the survey identified 1085 facilities that included CSOs. It should be noted that 455 of these are facilities that have been identified above as also having Category I, IIA or IIB needs.

Initial Sample Selection

The first objective was to identify key parameters to subdivide the survey population into groups to select a stratified random sample (Hanke, 1979). The stratified approach was used to insure that there would be sufficient facilities representing each of the groups to support inference on the original population. This approach is particularly valuable in cases such as this where a relatively small sample is to be selected from a large population. It consists of two steps: 1) identification of important parameters for grouping, and 2) selection of a sample taking equally from each group. This results in a deliberate over-sampling of smaller groups.

The parameters of greatest interest in this study were project type, cost, and location. After several trial groupings a final categorization was made. For purposes of sample selection, the treatment categories (I, IIA, IIB) were analyzed independently of CSOs. Table I displays the marginal distributions of the treatment population (15,798 facilities) and total cost for three parameters:

Table I. Marginal Distributions of Region, Cost, and Project Category for the Needs Survey Population

Classification	Number of Facilities	Percent of Facilities	Cost ($ Millions)	Percent of Total Cost
By Region:[1]				
Northeast	6,169	39	15,170	63
South	5,242	33	4,930	20
West	4,387	28	4,030	17
By Cost Magnitude:[2]				
Large	644	4	15,270	63
Medium	5,041	32	6,980	29
Small	10,113	64	1,880	8
By Project Category:[3]				
I	11,645	74	14,870	61
IIA	3,714	23	7,880	33
IIB	439	3	1,380	6
All Treatment Plants	15,798	100	24,130	100

[1] The regions are defined as: Northeast (EPA regions I, II, III, V); South (EPA regions IV, VI); West (EPA regions VII, VIII, IX, X).

[2] Cost categories are defined as: Large (cost ≥ $5 million); Medium ($0.5 million ≤ cost < $5 million); Small (cost < $.05 million).

[3] Project Categories are defined as: I (secondary treatment); IIA and IIB (advanced treatment).

project category, region, and cost. Projects reporting treatment needs only in Category I* (secondary treatment) represented 74 percent (11,645) of the facilities (representing the largest group) while requesting 61 percent of funds. Facilities reporting advanced secondary treatment (IIA) needs as their highest level accounted for an additional 23 percent of the population and 33 percent of the cost. Facilities wishing to upgrade through advanced treatment (IIB) accounted for the remaining three percent of the facilities and six percent of the cost. (The increasing unit cost - total cost divided by number of facilities - progressing from category I, to IIA to IIB should be noted.) It was decided that categories IIA and IIB would be treated jointly because of the small number of category IIB plants. The remainder of this discussion reflects implementation of this recommendation.

*others reported needs in Category I, but if their highest level of treatment needs was in Category IIA or IIB the facility was included in that category.

Although the distribution of facilities according to project category was fixed, the geographical regions and cost categories were selected in order to insure that each area would be represented. This geographical categorization was done on the basis of number of facilities, without breaking up the EPA regions (i.e. each EPA region was completely enclosed by one of the given three geographical designations). The northeast region included the largest number of plants (39 percent) followed by the south (33 percent) and the west (28 percent). The distribution by total cost is even more heavily skewed to the northeast (63 percent of cost).

Examination of the cost categories illustrated an interesting contrast between numbers and total cost, both of which were the basis for defining the categories. Although large facilities (with a need of at least $5 million) represented only 4 percent of the population, they accounted for 63 percent of the total cost. Conversely, facilities with small (less than $500 thousand) needs represented 64 percent of the facilities while only accounting for 8 percent of the total costs. The medium category facilities represented 32 percent of the facilities and slightly less (29 percent) of the capital resources.

Costs for improving the 1085 CSO facilities were estimated by EPA in most cases using a specially developed model incorporating several simplifying assumptions. However, these costs are not in the Needs Survey File thereby preventing an analysis of cost distribution. The distribution of facilities by EPA region (Table 2) shows that Region V encompassed 460 (42 percent) of all of the CSOs while Region VI included only one, and Region IX only three. For purposes of sample selection, CSOs were not subdivided by cost or region.

Table 2. Distribution of CSO's by EPA Region

Region	Number of CSO's
I	162
II	104
III	185
IV	31
V	460
VI	1
VII	37
VIII	40
IX	3
X	60
TOTAL	1,085

Classifying treatment facilities by three cost categories, three regions, and two project categories yielded eighteen mutually exclusive groups e.g. one group represents secondary treatment requests in the northeast for between $500 thousand and $5 million. Figures 3 and 4 depict the results of these groupings both in number of facilities and total cost by secondary and advanced treatment, respectively. Only 0.7 percent (81) of the secondary facilities are in the "south-large" grouping, while 28.9 percent (3362) are in the "west-small" group. Similarly, these range in total cost from 2.8 percent ($422 million) in the "south-small" group to 43.0 percent ($6393 million) in the "northeast-large" group. From the standpoint of sample selection, an ideal situation would have shown each group with 11.1 percent of both the cost and number of facilities. However, given the marginal distributions shown previously in Table 1, this ideal is unattainable.

The joint distributions for the advanced treatment facilities (Figure 4) show similar patterns. With respect to number of facilities the "west-large" group contains only 0.9 percent (36) of the AT facilities while the "northeast-medium" group contains 26.5 percent (1102). Analogously, the "west-small" group represents only 0.4 percent ($37 million) of the cost while the "northeast-large" group accounts for 42.4 percent ($3924 million). (No joint distribution analysis was made of CSOs since they represented only one project type (V), and costs were not available).

The Statistical Analysis System (SAS) was employed to select random samples from each of the eighteen treatment categories and the population of CSOs. Ten facilities were randomly picked from 18 treatment groups for a total of 180 samples. An additional 15 CSOs were also selected. Each category was oversampled (5 was the target) recognizing that several facilities would have to be dropped from the analysis due to inadequate data.

Data Collection and Reduction of the Sample

After selection of the 195 members of the sample, four phases of additional data collection were undertaken to determine whether the facility grant request was relevant for this analysis, and if so, whether the water quality status of the receiving water could be identified. Unavailability of data in the first three phases resulted in deletion of 95 facilities, leaving 100 in the sample. Listed are the four phases with the number of deleted projects in parenthesis:

1. project relevance (34);
2. receiving water identification (21);
3. determination of water quality status (40); and
4. collection of use designations and numerical water quality data (0).

The following paragraphs describe each phase in more detail.

Figure 3.

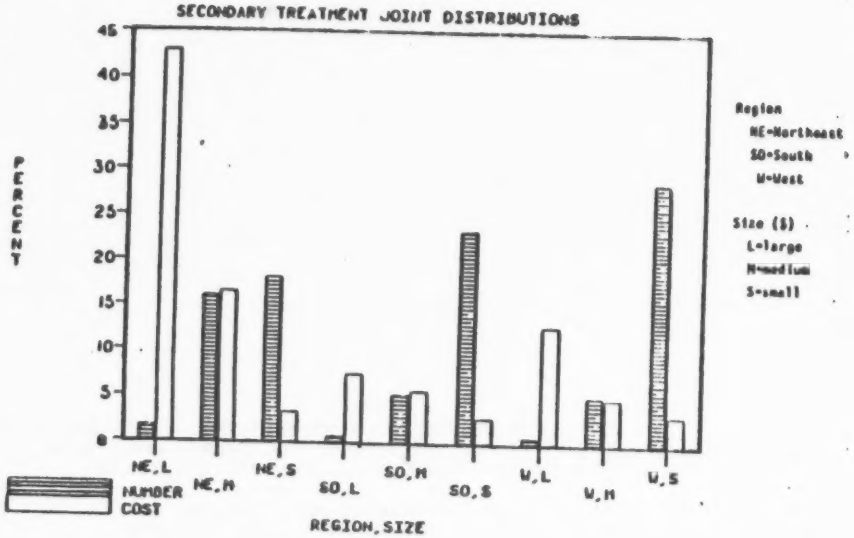
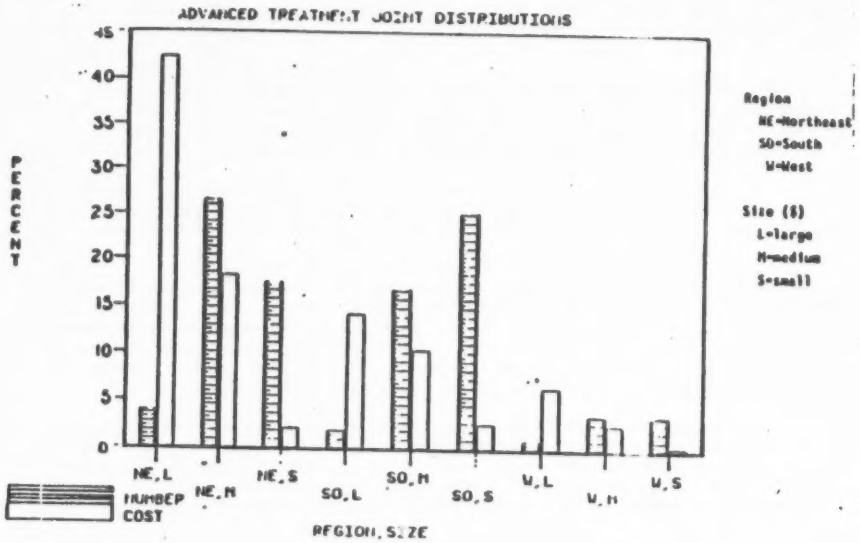


Figure 4.



First, projects were screened for their relevance to this analysis, i.e., do they directly influence water quality. All projects that were not currently or planned to be discharging into a receiving water were deleted. For example, projects requesting a grant for a sludge incineration process would not be included in the final sample since the future project would not directly affect a waterbody. Projects that did not have any apparent change in their treatment status were also deleted from the list.

Data were then collected to determine the location of the remaining projects and identify the waterbody to which they are, or will be discharging. Each project's county, town and National Pollutant Discharge Elimination System (NPDES) number were obtained from the 1982 Needs Survey List for this purpose. Although the county and town data were available for all projects selected, the NPDES number was unavailable for approximately half of the projects. The NPDES numbers were important for retrieving information from automated data bases such as the Water Quality STOrage and RETrieval file (STORET) and the Permit Compliance System (PCS). EPA's Permit Compliance Data Base and Industrial Facility Discharge Data Base were then searched for this information. If the receiving water could not be determined, United States Geological Survey (USGS) state hydrological unit maps and USGS 7.5 minute topographic maps were reviewed to identify the receiving water. If the probable receiving water could not be identified from these maps, the facility was deleted from the list. For example, if a facility could be discharging into two different waterbodies, it was deleted.

The next step was to determine the water quality status of the receiving water. The receiving waters were categorized as either supporting the designated use of the waterbody or not supporting the designated use. This was evaluated in terms of violations of the waterbody's water quality standards as determined by the use designation. All water quality parameters were considered in the determination of the water quality status, regardless of the effect the proposed project might have on the parameter. For example, if an industrial facility was causing violations of the water quality standard for cyanide and the proposed project would not cause an improvement in this condition, the receiving water was still considered to have water quality not meeting standards. The water quality parameters causing the poor water quality were also recorded.

The primary data source for determining the water quality status of the receiving water was the 1982 State Section 305(b) reports. The State's Evaluation of Progress (1972-1982) report (Association of ..., 1984) was also used to verify the status assigned to the receiving water. The quality and quantity of information contained in the State Section 305(b) reports and the States' Evaluation of Progress (1972-1982) report varied greatly with the state under consideration. Some states provided a water quality status on most of their waterbodies, while others only described their water quality in general terms and based on very few sampling stations. Therefore, the states with the most comprehensive 305(b) reports were also the states with the highest percentage of projects whose water quality status could be identified. In some cases the water quality of the receiving reach could be determined using data from sampling stations located above and below the discharge point. Sampling stations on the same reach were used when available, the ideal case having a sample station less than 20 miles downstream and/or 5 miles upstream. Unfortunately this was not always the situation and sometimes data from sampling stations further away had to be used. For example, this type of determination was used for the Saybrook STP located on the Sangamon River, Illinois. Here the water quality station was located 25 miles downstream from the discharge point, but on the same reach.

In other cases there were no sampling stations on the reach and a water quality evaluation had to be made from sampling stations on an adjacent reach. In the case of the New Baden STP in Illinois, there were no water quality stations on the tributary containing the discharge. The water quality for this STP was then determined for Sugar Creek, downstream of the tributary.

In a few 305(b) reports only very general statements are made concerning the basin. This was used in very few cases. One of these was the Mullens STP located in West Virginia which discharges into the Slab Fork Creek. West Virginia evaluates stream water quality in this area by considering the entire basin. This STP is located in the Guyandotte River Basin, approximately 308 m^2, which is described as having a bad fecal coliform problem. If no data at all was found the facility was deleted from the project list.

The final phase of data collection was important for the water quality analysis and was pursued only at those sites where water quality standards were not being met. The parameters of interest were:

1) Flow: a low flow and mean flow were determined for each receiving water (where appropriate). These data were derived from USGS gaging stations wherever possible. Estimated flows in EPA's river reach data file were used as a secondary source. In some cases flow could not be determined.

2) Designated Use: the uses (e.g., recreation, water supply) intended for each surface water are designated by the states. Where possible, those were determined from the 305(b) reports and/or the Environmental Reporter.

3) Water Quality Standards: numerical limits on various pollutants corresponding to each use designations in a state. These were also collected, when available, from 305(b) reports and/or the Environmental Reporter.

The data collected in these four phases were combined with that already in the data base to establish a computer data base of 100 facilities which served as the basis for the sample analysis. (See Appendix A).

SECTION FOUR
SAMPLE ANALYSIS

In this section, three analysis of the sample will be presented. The first shows that in spite of the deletions and the small size of the sample realtive to the population the sample is representative of the population and will, therefore, support inferences. The second will show the number, and corresponding cost, of the facilities located on receiving waters already meeting standards. And finally, the third identifies various characteristics of POTWs which correlate with receiving water quality.

Sample Representativeness

It is essential to determine if the deletion of facilities from the original 195 sampled has affected the representativeness of the sample. Table 3 shows the number of facilities retained and deleted for each group ranging from one to nine deletions in a group. To a certain extent, the deletion of facilities contains a random element created by imcomplete data sources. However, the reasons for deletions described in the previous section indicate certain potential systematic influences on the final sample. Although the extent to which each may affect the sample is unknown, they can be summarized as follows:

1) some surface waters are not designated for any uses and therefore, do not have applicable water quality standards. Therefore, it can not be said whether or not standards are being met.

2) for those waters that have designated uses, state and federal agencies tend to focus more resources for monitoring those not in compliance with standards, thereby creating a more complete data base for those waters.

3) state and federal agencies tend to focus more resources for monitoring large, economically important receiving waters than smaller ones.

The effect of these deletions was examined in two ways. The first was to look at the extent to which the major classifications are represented in the final sample. Small differences in sample size for each class indicates minimal bias introduced by the deletions. Table 4 shows the status of the facilities grouped according to the original classifying parameters: region, cost, and treatment category. In terms of region and cost there are no significant differences in the number of deletions. The northeastern and southern regions

Table 3. Status of the Sample by Group

Group	Retained	Deleted
1. Northeast/Large Cost/ST	5	5
2. Northeast/Medium Cost/ST	1	9
3. Northeast/Small Cost/ST	4	6
4. South/Large Cost/ST	5	5
5. South/Medium Cost/ST	6	4
6. South/Small Cost/ST	3	7
7. West/Large Cost/ST	5	5
8. West/Medium Cost/ST	8	2
9. West/Small Cost/ST	5	5
10. Northeast/Large Cost/AT	9	1
11. Northeast/Medium Cost/AT	6	4
12. Northeast/Small Cost/AT	5	5
13. South/Large Cost/AT	6	4
14. South/Medium Cost/AT	4	6
15. South/Small Cost/AT	6	4
16. West/Large Cost/AT	5	5
17. West/Medium Cost/AT	4	6
18. West/Small Cost/AT	7	3
19. CSOs	6	9
TOTALS	100	95

Notes: ST = secondary treatment
AT = advanced treatment

Table 4. Status of the Sample, By Class

Group	Retained	Deleted
By Region:		
Northeast	30	30
South	30	30
West	34	26
By Cost Magnitude:		
Large	35	25
Medium	29	31
Small	30	30
By Treatment Type:		
Secondary Treatment	34	52
Advanced Treatment	56	34
All Treatment Plants	94	86
CSOs	6	9

both experienced 30 deletions, with 26 for the western region. Similarly, the small and medium costs facilities show 30 to 31 deletions, respectively, while the large facilities experienced 25 deletions. In constrast, success was much greater in finding data for facilities requesting funds for advanced treatment (34 deletions) compared with secondary treatment (52 deletions). Among the possible reasons for this are:

1) communities requesting funds for secondary treatment tend to be smaller and located on smaller waterbodies.

2) communities requesting funds for secondary treatment tend not to have a facility currently in existence; i.e. there are many more septic systems making it difficult to anticipate the receiving water; and

3) advanced treatment requests are only to be made under circumstances in which water quality standards are being violated.

The second means of identifying the effect of the deletions was to perform statistical comparison of the sample and population data for each group. This was done for three parameters: cost, effluent flow, and resident population served by the facility. In all, 57 tests were performed (three parameters for nineteen groups) at the 95 percent confidence level. The analysis showed that 44 (77 percent) of the samples were representative of their corresponding populations, with only two (4 percent) failing the test. The remaining 11 tests could not be completed either because they were not applicable or because of insufficient data (see Appendix B for more details). These positive

results (combined with the data shown in Table 4) demonstrate that the final sample was not adversely affected by the deletions and remains representative of the population.

Frequency of Facilities on Waters Already Meeting Standards

Emphasis is placed on identifying facilities on waters already meeting standards. The water quality benefits from grants for these facilities are minimal because standards have already been met, and the designated uses supported. The Nation's surface waters are a resource of multiple uses: swimming, fishing, water supply, and many others. Each of these uses have corresponding water quality standards which, if met, would avail the resource for sanitary, aesthetic, and economic consumption. If not met, other resources must be expended to support the use (e.g. disinfection for water supply) or else use must be discontinued. If facilities located on waters already meeting standards can be identified, limited construction grant funds can then be redirected toward facilities where water quality benefits may be realized.

Table 5 shows the results of the sample data collection effort and the extrapolation to the Needs population. The first column shows the number of treatment and CSO facilities in the population as well as their distribution by region, cost, and treatment classifications. The second column shows the percentage of facilities in the sample* located on receiving waters already meeting standards. The third and fourth columns presents the results of the extrapolation. The third shows the number of facilities in the population expected to be on waters already meeting standards while the fourth column shows the range of error at the 95 percent confidence level (see Appendix B).

Overall, the table shows that 52 percent or 8,200 secondary and advanced treatment facilities are or will be sited on receiving waters already meeting standards. With 95 percent confidence, it may be said that this figure could actually be any where between 6,600 and 9,800 facilities. Disaggregating this result by geographical region, moderate differences can be seen. The south exhibits the greatest number of facilities on waters meeting standards while the northeast shows the lowest. The latter may be a result of greater industrialization in the northeast region. No explanation is offered regarding the relative ranking of the west and south.

With regard to cost magnitude, more pronounced differences are revealed. From the sample it is clear that the smaller the need request, and probably the facility itself, the more likely it is that the facility is located on waters meeting standards. Twenty-two percent of the large facilities are in this situation while 58 percent of small facilities are in the same situation. Medium cost facilities take the middle position at 43 percent.

*the percentages are adjusted for the stratified nature of the sample. That is, the results for each group have been weighted by their corresponding sampling ratios.

Table 5. Sample Results and Extrapolation to the Needs Survey Population

Classification	Number Of Facilities in Population	Facilities in Sample Located on Waters Already Meeting Standards (Percent)	Extrapolation To Entire Population (Facilities)	95% Confidence Interval* (Facilities)
By Region:				
Northeast	6169	41	2530	±1000
South	5242	63	3300	± 880
West	4387	54	2370	± 700
By Cost Magnitude:				
Large	644	22	140	± 80
Medium	5041	43	2170	± 840
Small	10113	58	5880	±1719
By Treatment Type:				
Secondary Treatment	11643	53	6170	±1690
Advanced Treatment	4153	49	2040	± 340
All Treatment Plants	15798	52	8200	±1600
CSOs	1085	33	360	± 270

*The 95 percent confidence interval defines the range of values within which the actual number of facilities on waters meeting standards can be expected to fall with 95 percent certainty.

With respect to treatment type there is no difference in the probability of a facility being on a receiving water meeting standards (note the confidence intervals). This result is important for two reasons. First, it indicates that approximately half of the proposed secondary treatment projects may not be justifiable on water quality grounds even though they must comply with technology based requirements for secondary treatment. Second, it indicates that approximately half of the proposed advanced treatment projects may not be justified in applying for grants for water quality reasons since advanced treatment is only required where standards are not currently attained. Both of these have important implications for targeting limited construction grant funds where water quality benefits would be greatest.

Little can be drawn from the results of the sample of CSOs. One third, 360 facilities, are located on waters already meeting standards. However, these estimates are accompanied by a wide confidence band of plus or minus 270 facilities.

The sample data base may also be used to estimate the dollars represented by facilities located on waters already meeting standards. Table 6 shows these results in a format identical to that used previously. Most importantly, 31 percent ($7.5 billion) of needs dollars are located on waters meeting standards. (The 95 percent confidence range is $1.1 billion.) This means that the 8,200 facilities located on waters already meeting standards (Table 5) corresponds to $7.5 billion needs dollars (Table 6). This ameliorates the concern that grant dollars are or will be spent where little or no water quality benefits may be gained. However, $7.5 billion remains a substantial sum to invest with no water quality benefits in return.

Two other important findings are shown in Table 6. First, the ranking of facility percentages does not change (from Table 5) for the regional and treatment type sub-classes, although they do experience a uniform drop. Second, the percentages, and therefore their ranking, for the cost classes are virtually unchanged between weighting schemes (Tables 5 and 6). This is because the cost weighting is based on facility cost while the categories themselves are grouped by cost.

Treatment Facilities and Water Quality Trends

Further analysis of the sample data base reveals several strong correlations between various facility and/or receiving water characteristics, and whether or not water quality standards on a receiving water are being met. Figures 5a and b, show the first parameter related to water quality status. Treatment level is a characterization of the effluent by the quality of treatment. In order of increasing effluent quality are primary, advanced primary, secondary, and advanced secondary treatment levels. In effect, the highest level of treatment is no discharge at all. This occurs either because land disposal (or another zero discharge method) is employed or because a facility is currently not in operation. Figure 5a, shows that at the lower treatment levels one tends to see poorer water quality precisely because lower quality effluent is being discharged. At the lowest level - primary treatment - 38 percent of the facilities located on receiving waters violating standards discharge primary wastes, while only 13 percent of the facilities on receiving waters meeting standards do the same. At the other end, zero discharge, 19 percent of the facilities on waters violating standards have no discharge while over 58 percent of the facilities on waters meeting standards have no discharge.

Weighting by cost of facilities yields a similar result as shown by Figure 5b. In this case, the percentages of facilities currently discharging primary wastes are 36 percent for facilities meeting standards and 8 percent for those not meeting standards. For the no discharge situation, the corresponding percentages are 22 and 42. Based on these figures there is a strong correlation between present levels of treatment and receiving water quality, with poorer quality discharges appearing more frequently on receiving waters which are violating standards. Furthermore, the weighting scheme shifts the distributions slightly, but does not change the overall relationship.

Table 7 presents similar data for three other parameters also in the needs survey data base:

1) Effluent flow.

2) Resident population served, and

3) Total project capital cost.

Table 6. Sample Results and Extrapolation to the Needs Survey Population (Cost Weighted)

Classification	Facilities ($ millions)	Dollars in Sample Located on Waters Already Meeting Standards (percent)	Extrapolation to Entire Population ($ millions)	95% Confidence Interval ($ millions)*
By Region:				
Northeast	13170	24	3640	± 983
South	4930	43	2120	± 370
West	4030	39	1570	± 450
By Cost Magnitude:				
Large	15270	21	3210	± 640
Medium	6980	44	3070	±1240
Small	1880	57	1070	± 710
By Treatment Type:				
Secondary Treatment	14870	33	4910	±1090
Advanced Treatment	9260	27	2500	± 320
All Treatment Plants	24130	31	7500	±1100

*The 95 percent confidence interval defines the range of values within which the actual number of facilities on waters meeting standards can be expected to fall with 95 percent certainty.

Figure 5a.

DISTRIBUTION OF FACILITIES ON RECEIVING WATERS MEETING STANDARDS AND VIOLATING STANDARDS, BY TREATMENT LEVEL.

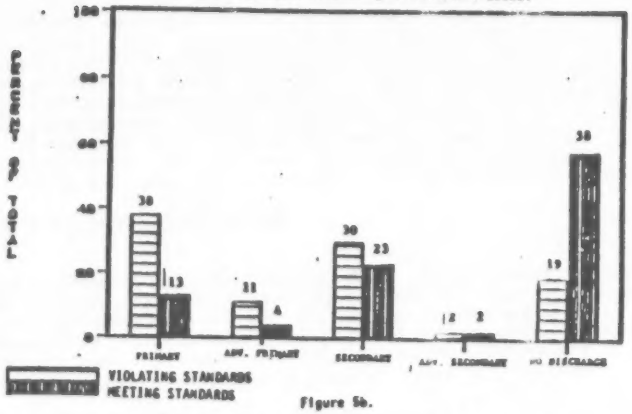
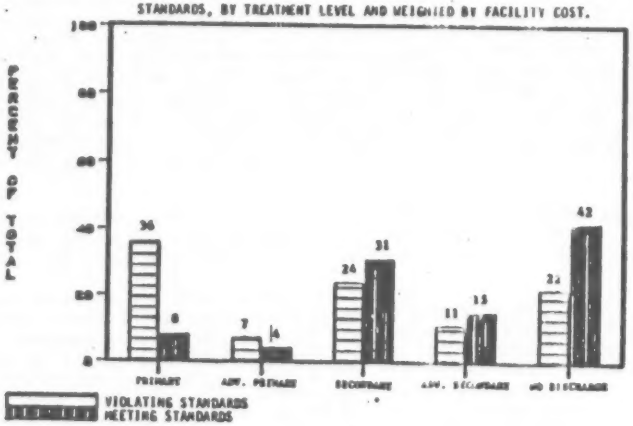


Figure 5b.

DISTRIBUTION OF RECEIVING WATERS MEETING STANDARDS AND VIOLATING STANDARDS, BY TREATMENT LEVEL AND WEIGHTED BY FACILITY COST.



This table show the means of each parameter for receiving waters both meeting and not meeting standards. Also shown is an indication of the statistical relationship between these mean values. The results for the project costs confirms the point that larger need requests tend to correspond with receiving waters not meeting standards. Average grant cost (geometric mean) for a facility located on a receiving water not meeting standards is $370 thousand while the cost is $170 thousand for those on waters meeting standards. A similar result is obtained weighting by the cost of facilities. In both cases, the means have been shown to have a statistically significant difference (see Appendix B).

Moving to effluent flow one sees a similar result: facilities on receiving waters not meeting standards tend to have higher current effluent flows. This is statistically significant for the unweighted case. This trend is repeated for resident population served. Larger populations are being served (implying larger facilities) by facilities on receiving waters which do not meet standards. Again only the unweighted scheme is statistically significant.

Table 7. Factors Contributing to Receiving Water Quality

Parameter	Mean Value[1] V.S.[4]	Mean Value[1] N.S.[4]	Significant Differences[2]	Mean Value[1,3] V.S.[4]	Mean Value[1,3] N.S.[4]	Significant Differences[2]
Project Cost (millions of dollars)	0.37	0.17	Yes	5.2	2.0	Yes
Effluent Flow (MGD)	0.21	0.09	Yes	2.1	1.4	No
Resident Population Served	1,940	672	Yes	14,300	9,700	No

[1] the geometric mean was used because of the skewed nature of the data.

[2] based on t' test of the difference of two means at the 95 percent confidence level.

[3] weighted by the cost of facilities.

[4] V.S. = for facilities violating standards; N.S. = for facilities meeting standards.

SECTION FIVE
WATER QUALITY BENEFITS

Other benefits notwithstanding, a strong case has been made that grants for facilities on waters already meeting standards are less likely to be cost effective than those on waters not meeting standards. In the context of EPA's goal of nationwide attainment of water quality standards, construction grants for facilities in the former situation would yield no water quality benefits because standards are already being met for the the receiving water's use designations. However, it does not follow that grants for facilities on waters with poorer water quality will make significant gains, either because the pollution problem is too vast, the POTW is too small, or both.

This section discusses the water quality benefits that may be expected from different types of Publicly-Owned Treatment Work (POTW) improvements. It is divided into four sub-sections which discuss secondary and advanced treatment facilities (categories I and II); infiltration/inflow and sewer rehabilitation (category III); new collector and interceptor sewers (category IV); and combined sewer overflows (category V), respectively. The analysis for secondary and advanced treatment facilities represents detailed study of data in the sample data base. The latter three analyses are more qualitative primarily because many of these projects do not have easily identified water quality benefits and were therefore not included in the sample.

Secondary and Advanced Treatment Facilities

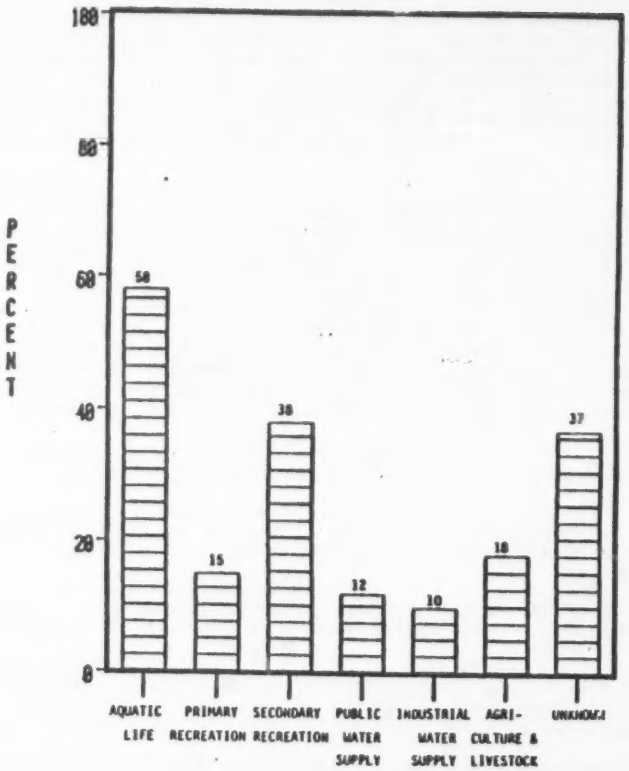
General. Before water quality benefits of treatment facilities can be analyzed an understanding of the source of the water quality benefits must be reached. Each receiving water in the sample has been designated for one or more uses ranging from the portection of aquatic life to swimming or public water supply. The extent that these uses can be economically and aesthetically productive is the extent to which they are beneficial to society. Figure 6 displays the distribution of uses found in the unadjusted sample data base for receiving waters currently violating standards. The following uses are therefore being denied due to excessive concentrations of contaminants;

1) Aquatic life: 58 percent of the receiving waters not meeting standards are designated for the protection of aquatic life, e.g. fisheries;

2) Secondary recreation: 38 percent are designated for partial body contact recreation such as boating;

3) Agricultural irrigation and livestock watering: 18 percent are designated for irrigation of crops and watering of agricultural animals;

Figure 6
DISTRIBUTION OF USE DESIGNATIONS FOR RECEIVING WATERS NOT MEETING STANDARDS



*Totals to more than 100 percent because a stream may have multiple uses.

4) Primary recreation: 15 percent are designated for full body contact recreation such as swimming;

5) Public and industrial water supply; 12 and 10 percent are designated for municipal and industrial water supply, respectively.

In addition to these, 37 percent were not specifically designated in the data available for this study. It should be noted that the totals exceed 100 percent because receiving waters may be designated for multiple uses.

These use benefits are being denied by the existence of contaminants at levels excessive for the particular designation. In the unadjusted sample, the following were found to exceed water quality standards (listed in order of decreasing frequency:

- fecal coliform bacteria
- nutrients, e.g., phosphorus
- biochemical oxygen demand
- solids
- metals, e.g., lead
- turbidity
- organic chemicals and pesticides
- others: pH conductivity, temperature, odor, and oil.

Maximum water quality benefits, i.e., use of receiving waters as designated, may be obtained when POTW improvements specifically address the contaminant(s) currently denying the benefits. POTW improvements are feasible for most of the listed contaminants.

Analysis. Case by case analysis of each facility located on receiving waters violating standards must be undertaken to assess whether the proposed project would be likely to address the existing problem. For example, an upgrade from primary to secondary treatment can be expected to significantly reduce discharges of fecal coliform bacteria. Conversely, an upgrade from secondary to advanced treatment cannot be expected to reduce the discharge concentration of solids because the bulk of these are already removed at the secondary level. The following results were obtained from the raw sample:

1) 48 percent of the proposed improvements have potential for making progress in meeting water quality standards. The improvement addresses the contaminant(s) contributing to the problem;

2) 5 percent appear unlikely to contribute to meeting water quality standards. The proposed improvement does not address the problem constituent;

3) An additional 34 percent also appear unlikely to contribute to meeting standards because the proposed improvement is an enlargement of an existing facility or construction of a new one. Both will increase the volume of discharge. However, this does not reflect potential regional benefits of these new or expanded facilities; and

4) 13 percent of the cases could not analyzed due to insufficient data.

These results, although useful, only address water quality at the point of discharge and not in the receiving water itself. Several other factors contribute to ambient water quality: the existence of other discharges, the dilution offerred by the receiving water, and the assimilative capacity of the receiving water. Several specific sample sites were modeled to evaluate these interactions. To simplify the modeling, only sites meeting the following criteria were analyzed:

1) The site was violating standards. It was assumed that even though improvements may be experienced on receiving waters meeting standards, projects on receiving waters violating standards would be more cost-effective.

2) BOD/DO is at least part of the water quality problem. BOD/DO was modeled because it is commonly associated with POTW effluents and could be analyzed with more than a dilution analysis.

3) The receiving water is continuously flowing, such as a river or stream. Other hydraulic systems - lakes, estuaries, and the ocean - are more difficult to represent in simple models.

4) Daily flow and temperature data exist for the river. Without daily data a much less specific analysis would have to be made.

Only six sites met all four criteria, but they came from all three regional classes, two cost classes, and both treatment classes. (The six sites and their location, current treatment level, proposed treatment level, and receiving water are shown in table 8). Four of the facilities are requesting over $5 million in grants - Cedartown, Itasca, Marshaltown, and Webster. The other two - New Baden and Saybrook - are requesting less than $500 thousand. In terms of the type of treatment, both Cedartown and Saybrook are currently not in operation, but are proposing to build new facilities for advanced secondary treatment. The New Baden facility is currently advanced primary, but would like to upgrade to secondary treatment. Itasca will remain advanced secondary, but desires funds for enlargement. Marshaltown and Webster are also requesting funds for upgrades.

A common measure of water quality benefit is to calculate the cost of removing the offending contaminant from the effluent. Table 9 summarizes this calculation for the six case sites. First, it presents the initial and final effluent data from which the volume removed can be calculated. The difference in the loads can then be divided into the cost of the project, giving a unit cost. New Baden would experience the lowest unit removal cost at $7.7 thousand for the removal of a kilogram of BOD_5 each day. Corresponding unit costs for Marshaltown and Webster are $25.1 and $26.8 thousand, respectively. The differences in these costs can be explained by re-examining table 8. At New Baden, the removal is achieved by upgrading from advanced primary to secondary treatment where significant increases in removal efficiencies are gained. In contrast, Marshaltown and Webster are both upgrading from secondary to advanced secondary and tertiary treatment, respectively. At these levels, incremental removal is more difficult, and consequently, more expensive.

Table 8. Site Summary For Modeling of Treatment Plants

Facility	City	State	Current Treatment Level	Proposed Treatment Level	Receiving Water
Cedartown WPCP No. 1	Cedartown	GA	Not in operation	Advanced secondary	Cedar Creek
New Baden STP	New Baden	IL	Advanced primary	Secondary	Sugar Creek
Saybrook STP	Saybrook	IL	Not in operation	Advanced secondary	Sangamon River
Itasca	Itasca	IL	Advanced secondary	Advanced secondary	Salt Creek
Marshaltown WWTP	Marshaltown	IA	Secondary	Advanced secondary	Iowa River
Webster STP	Webster	MA	Secondary	Tertiary	French River

Table 9. Cost of BOD_5 Removal and Water Quality Improvements for Six Case Studies

Facility	Cedartown	New Baden	Saybrook	Itasca	Marshaltown	Webster
Initial Effluent Flow (MGD)	0	0.20	0	1.33	5.10	4.18
BOD_5 (mg/l)	n/a	90	n/a	10	38	30
Load (kg/day)	0	68	0	50	734	475
Final Effluent Flow (MGD)	5.0	0.47	0.10	4.0	5.61	6.2
BOD_5 (mg/l)	20	30	30	20	10	7
Load (kg/day)	378	53	11	303	212	164
Cost ($ thousands)	5,350	115	492	5,700	13,100	8,330
Unit Removal Cost ($1,000/kg/day)	n/a	7.7	n/a	n/a	25.1	24.8
Water Quality Improvement ($1000m^3$/year)	-543	75.2	-1.2	-217	250	180
Cost Effectiveness[2] ($/$m^3$/year)	n/a	1.5	n/a	n/a	52.4	46.3

[1]Water quality improvement is the volume of water raised above the standards every year due to the proposed treatment projects. Units are thousands of cubic meters per year.

[2]Cost effectiveness is the ratio of cost to water quality improvement. Units are dollars per cubic meter per year.

n/a = not applicable.

Proposed facilities at Cedartown, Saybrook, and Itasca would not yield positive unit removal cost as shown in table 9. For the first two, this is because they would be introducing new loads where none previously existed. For the third, loading is increased primarily because the effluent flow triples.

In any case, the measure of unit removal cost does not address ambient water quality. Discharges from other sources, runoff, dilution, and the assimilative capacity of the receiving water contribute to overall water quality. For this reason, a Streeter-Phelps model was used to analyze the water quality effects of six facilities. Effluent data was drawn from the Needs Survey, ambient water quality was taken from STORET, and stream flow data was drawn from USGS flow files. These data were synthesized to calibrate the model for each site to estimate the background loading* and to simulate existing water quality conditions. Next the effluent data corresponding to post-expenditure conditions was substituted for current data to estimate water quality benefits. (See Appendix C for detailed explanation of the modeling.)

In most cases, even receiving waters that are not supporting their designated uses will be meeting standards during some parts of the year and violating them during others. Therefore, it is useful to find some measure of water quality benefits which reflects the fact that uses are being denied only during parts of the year. Similarly, it can be reasoned that larger receiving waters have the potential to support more recreation, provide more water supply, irrigate more crops, and support greater fish populations than smaller ones. Consequently, it is also useful to find a benefit measure which incorporates receiving water size to represent the magnitude of benefits available. The measure proposed for this study achieves both objectives.

Water quality benefits as defined for this study are the change in the volume of water per year that passes a treatment facility in violation of applicable water quality standards. This achieves the first objective by only including flows observed on those days of the year when standards violations occur, while achieving the second objective by summing those flow values, rather than counting the number of violations. In this way, the water quality benefits may be equal for a project that eliminates 10 days per year of sub-standard flows on a large river and for a project that eliminates 20 days per year of sub-standard flows on a river half the size. For rivers of equal size, benefits are greater for projects providing more days of improved quality; and for sites with an equal number of improved days, benefits are greater for larger rivers.

Table 9 presents this measure for each of the six sites. For the three sites with a reduction in loading (New Baden, Marshaltown, and Webster), a positive water quality improvement is predicted. The greatest benefits are obtained on the Iowa River (Marshaltown) where an additional 250,000 cubic meters of river water per year is made available to support its designated uses: secondary recreation and the maintenance of aquatic life. Approximately 180,000 cubic meters per year would be made available on the French River (Webster) for primary recreation, secondary recreation, and maintenance of aquatic life. Similarily, 75,200 cubic meters per year would be newly available on Sugar Creek (New Baden) for which the

*background loading is all contaminants at the discharge point due to upstream point and non-point discharges.

uses are unknown. For those sites where an increase in loading is predicted additional water would become unavailable for the designated uses. This occurs on Cedar Creek (Cedartown), Salt Creek (Itasca), and the Sangamon River (Saybrook) in the amounts of 543,000, 217,000, and 1,200 cubic meters per year, respectively.

Regardless of whether improvement or deterioration occurs, the magnitude of the change is dependent on the following factors:

1) The change in effluent load. Reductions in load improve water quality while increases degrade it. (Load is the product of effluent flow and concentration.)

2) The relative size of (1) compared with other sources of pollutants. If a treatment plant is only a minor contributor to a problem, changes in the plant will have little effect on achieving benefits.

3) The size of the receiving water. This factor operates two ways. First, large receiving waters are less susceptible to loading changes because of greater dilution capabilities, and second, large receiving waters have greater potential benefits if improvements can be made.

Comparing water quality benefits to the cost of achieving them provides a guide for evaluating how well the money would be spent. Table 9 includes a ratio of the cost to achieve the benefits and the benefits themselves. The most cost-effective expenditure is observed at New Baden where one cubic meter per year of improved water quality would cost $1.50 in capital cost. At the Webster site a similar improvement would cost $46.30, and at the Marshaltown site it would be $52.40. Cost-effectiveness calculations were not applicable for Cedartown, Saybrook, and Itasca since no water quality benefits were predicted.

This measure of cost-effectiveness, along with the unit removal cost, can be used as guides for directing construction grant funds where water quality benefits will be maximized. Although six sites are an inadequate basis for drawing conclusions about almost 16,000 facilities, they do provide a framework for subsequent analysis. The fact that 8,200 facilities on waters already meeting standards are requesting $7.5 billion dollars provides the motivation for subsequent action.

Infiltration/Inflow Rehabilitation of Sewers

General. As stated previously, the effects of non-treatment type projects generally have only in direct effect on receiving water. First, the general nature of this influence will be introduced followed by a specific discussion of each type of facility. The design and operation of publicly owned treatment works for wastewater are very dependent on the organic loading and the hydraulic loading. The organic loading is important in the design of biological treatment units such as trickling filters, activated sludge aeration tanks, rotating biological contactors, and the like. Since these units depend on microorganisms to metabolize the wastes, it is essential to be able to control the concentration of these waste materials with respect to the microorganisms feeding on them. Hydraulic loading is important in the design of both biological treatment units and in physical treatment units, such as settling tanks.

Within a wastewater treatment facility the physical and biological processes can be controlled through such activities as increasing or decreasing aeration rates; recirculation of flow, or process streams, through selective pumping; by the addition of various chemicals to aid in flocculation and settling; or by some other control activities. The repertoire of control mechanisms is quite limited and unit process efficiencies are highly dependent on the ability of wastewater treatment plant operators to keep control activities operative within rather narrow ranges of organic and hydraulic loading.

Addition of large quantities of water delivered to a wastewater treatment facility from time to time, serves to disrupt both organic and hydraulic loadings, particularly when that water is from rain or groundwater sources. The increased flows tend to exceed design hydraulic loadings, decreasing detention times and disrupting physical processes, such as sedimentation. Increased, essentially freshwater flows (in case of infiltration/inflow) tend to dilute concentrations of waste materials in the wastewater thus reduce the organic loadings. In extreme cases, flows have been increased to such an extent that it has been necessary either to provide temporary holding tanks to store the increased flows or simply to bypass the treatment facility. In most cases, flows that are bypassed enter receiving streams experiencing similar increased flows, such that increased in-stream assimilative capacity is available, and overall water quality is not adversely affected. (Of course, bypassed flows may not receive the disinfection, by chlorination or other means, they would have otherwise received. Consequently, there is the possibility of pathogens entering the receiving water). If wastewater treatment plant unit processes are disrupted because of hydraulic loading increases due to increased flows beyond the range designed for, it may take days or weeks to restore the treatment plant to its previous operational status, including process efficiencies. During the period of process disruption instream water quality may be adversely affected.

Infiltration/Inflow (Category IIIA). As defined in 40 CFR 35.905, inflow and infiltration are distinct quantities of water, other than wastewater, that enter the sanitary sewer system. Inflow is water that enters the system through direct connection such as manhole covers and frame seals, roof drains, yard drains, area drains, foundation drains, storm sump drains, drains from swampy areas and springs, and sometimes from cross-connections between storm sewers and sanitary sewers (as distinct from combined sewers). Infiltration is water that enters the sewer system from the ground by access through defective pipes, pipe joints, service connections, manhole walls, and other similar access. A significant location for infiltration is the transition from sewer to manhole and from manhole to sewer.

Inflow is more readily addressed than infiltration. Inflow is reduced by devising means of excluding of precipitation related flows from discrete access points. For instance, roof, yard area, foundation, storm sump, and spring drains can be disconnected from the sewer system or sealed. Smoke testing often has been used to locate the more prominent access points for inflow. Ordinances are usually required that legally prevent future connection of such drains to the sanitary sewer system. Access through manhole covers and frame seals is often more difficult to correct. Sewer lines, being basically gravity systems, are located in valleys and natural depressions with manholes provided for access at every major bend and at regular intervals. These valleys

and depressions become natural temporary ponding locations for stormwater. Under these circumstances, inflow is a major problem particularly where design deficiencies exist. Many trunk sewer lines follow streambeds to wastewater treatment facilities. In short, many past design deficiencies or design expediencies may be difficult to correct. Fortunately, because such problems have been widespread, over the past decade solutions to such problems have been devised for many of these situations and the literature is replete with examples of such corrections.

Although solutions to problems of inflow may be difficult in many instances, the problem of infiltration is much more pernicious. Maximum infiltration at rates up to 2778 liters per day per centimeter of pipe diameter per kilometer of sewer generally are considered "non-excessive". Maximum infiltration rates are based on the highest weekly (seven day) average within a twelve month period and are compared to a "dry-weather" flow period of like duration. Maximum infiltration rates of this magnitude are approximately the same order of magnitude as normal sanitary flows generated by domestic activity.

Elimination of infiltration is virtually impossible. The ground surrounding sewers is always subject to motion which can break pipes, or at least disrupt pipe joints. This condition exists even for the best of pipe materials installed with the maximum of care, under the best set of specifications. Therefore, wastewater treatment facilities have to be designed to operate under organic and hydraulic loadings characteristic of the extreme "dry-weather" situation up to, at least, a "wet-weather" condition under which infiltration occurs but at a "non-excessive" rate.

Bypassing of wet-weather flows is not desirable, but neither is the swamping and disruption of unit processes by routing the excessive flows through the treatment facility. One alternative, if physically possible, is to capture and temporarily pond, or otherwide store, some of the excess flow to be later released and treated through the wastewater treatment facility when it is able to handle the higher hydraulic and organic loading capabilities. Another type of alternative is to correct the infiltration problem by various methods of repair and rehabilitation. Of course, such repair and rehabilitation clearly must be feasible and cost-effective in comparison to storing wastewater flows, or enlarging the treatment plant facilities to handle the excess flows, or by addressing the problem by some other means. Since infiltration cannot be reduced to zero, some realistic reduction should form the basis for cost-benefit comparison. Repair and rehabilitation should result in reduction of excessive infiltration on the order of

determinations (Grieshaber, 1980).

Correction of Infiltration/Inflow (I/I) problems follows a two-step process of problem identification and selection of remedies. Using Environmental Protection Agency nomenclature, the first step is an "I/I Analysis" in which inflow and infiltration flows are identified in a broad way and determined to be "excessive" or possibly "non-excessive". If I/I is thought to be excessive, a second step is the performance of a "Sewer System Evaluation Survey" (SSES) where infiltration and inflow problems are delineated in detail. In the SSES, the I/I problems are to be identified in a logical and sequential order. For instance, inflow problems and obvious pipe, joint, or manhole problems are quickly identified with more detailed

infiltration problems identified on a section by section basis in the whole sewer system for those portions of the system where infiltration is thought to be excessive. Sewer rehabilitation then follows for those areas in which it can be accomplished and for which a significant reduction in infiltration can be economically effected.

Rehabilitation of Sewers (Category IIIB). If the SSES shows that sewer systems can be rehabilitated in such a manner that infiltration can be reduced in an economic fashion, then such work may be justified. Water quality benefits will then occur from the reduction or elimination of bypasses, or from wastewater treatment which can be controlled to meet design efficiencies. Sewer rehabilitation may also help to prevent the export of groundwater from an area by way of the sewer system and wastewater treatment plant. In areas with small groundwater supplies such improvements could be highly beneficial. On the other hand, sewer rehabilitation may force a higher wastewater treatment capacity to remain available for domestic or industrial wastewater. In addition, the apparent need to add treatment capacity is also an opportunity to enlarge a customer base and may be of direct economic advantage to the wastewater treatment agency, but of no particular advantage in terms of enhancement of receiving water quality. In terms of local water budgets, increased wastewater treatment capacity could have an adverse impact on groundwater resources. For instance, if the customer base is supplied from groundwater sources but exports water from the area through the wastewater treatment system than an adverse impact might occur (land treatment of wastewater effluents would offset the adverse impacts). A sewer system that suffers from infiltration could also leak wastewater to the surrounding media, but at or below the existing water table so that infiltration (or incipient infiltration) is the predominant pattern.

Three principal problem areas are associated with infiltration problems. One is in the service connections to the neighborhood collector sewers. With modern PVC pipe, the line from the house to the street is usually quite tight, however, the joint between the house line and the collector sewer may be poorly made. Older service lines have been made of materials subject to breakage settlement, joint separation and root penetration. All of these problems are difficult to remedy without wholesale excavation and replacement of the service lines, and possibly the collector sewer itself.

A second problem area is in the jointing of pipe to pipe. Newer pipe and joint materials have served to reduce this problem area in newer installations. In laying gravity sewers, problems develop in passing through different types of soils and rock formations, etc. Even with the most careful adherence to specifications, joints are stressed, as are the pipes themselves. Present specifications have evolved from past, unfavorable experiences, consequently, older sewer systems of ten years have more problems. Rehabilitation is often accomplished by regrouting pipe joints from the inside, providing new pipe liners, or by grouting small breaks in the pipe. Where major cave-ins have occurred, often the only recourse is to remove and replace the pipe. The advent of modern television surveillance equipment and of new grouting procedures often makes such rehabilitation feasible and effective.

A third problem area is found in older cities with egg-shaped and horseshoe shaped trunk sewers constructed of brick or stone, and mortar. Here major infiltration problems are associated with the deterioration of the mortar. Usually these trunk sewers and manholes are reasonably accessible and rehabilitation takes the form of regrouting, guniting (spray concrete), or providing new linings which stop the infiltration. Reconstruction is usually unnecessary since these structures were initially well built.

Sewer system rehabilitation can be categorized into two general classifications (as accounted for in the "1982 Needs Survey"). These classifications involve separate sanitary sewers only, not storm or combined sewers. The first relates primarily to the possible cost-effective reduction of I/I through remedial corrective actions. The second involves rehabilitation, restoration or reconstruction of critical portions of a sewage system. In other words, the second relates to structural deficiencies that need to be remedied in order for the sewage system to work rather than simply reduce I/I to the treatment plant.

A brief review of the 1982 Needs Survey results may be instructive while awaiting results of the 1984 Needs Survey. For the first classification, treatment facilities and sewer systems where I/I correction actions are estimated to be cost-effective, 1,852 systems out of 3,126 examined were estimated to be able to benefit from corrective activity. Estimated cost is given as 1.38 billion dollars in 1982. These estimates are based on studies having variable accuracy. Principal corrective actions are sealing sewer lines for about 50 percent of the systems and about 41 percent of the estimated costs, and replacement or relining of sewer sections for about 36 percent of the systems and about 50 percent of the estimated costs. Proposed corrective actions were not clearly defined for about 10 percent of the systems although a split between actions outlined above could be postulated. Other corrective actions such as creation or changing of a flow routing system, flow equalization and other such actions apply to less than four percent of the systems.

For the second classification (facilities requiring major rehabilitation), 389 systems were identified. The principal form of corrective action, approximately 75 percent of the systems and over 95 percent of the estimated costs, is given as: "replace or reline sewer sections." Although this form of rehabilitation is similar to that given under the first classification, the sewer lines and sections tend to be feeder lines as opposed to trunk lines typical of the second classification. Trunk lines are often large, deeply buried sewer lines located under congested areas of a metropolitan area. On the other hand, the feeder lines are typically less deeply buried, smaller and in less congested areas. The trunk lines are, of course, central to the sewer system infrastructure whereas the feeder lines are not.

New Collector and Interceptor Sewers

General. Early experience under the Construction Grants Program, initiated under PL 92-500, has been translated into numerous program requirement memoranda (PRMs) and other guidances. For many of those entities whose planning processes were well advanced near the time PL92-500 was enacted, grants were obtained based on generous projections of future population to be served. Some of the facilities built, therefore, have substantial excess capacity to absorb significant new development. Actual experience has shown that some of these generous population projections have not materialized, resulting in idle capacity available for future regionalization not originally intended. Construction Grants Program guidance has since focussed the various wastewater planning entities on planning for existing problems and near-term population growth which can be anticipated by the time facilities are actually built.

Additional program experience and technological developments since the passage of PL92-500 gave rise to changing philosophies with respect to wastewater treatment planning activities, particularly in terms of overall water management strategies. Two emerging philosophies are decentralization of wastewater treatment (the opposite of regionalization) and incorporation of wastewater as a water resource within localized water budgets. The latter is also the opposite of regionalization and export of wastewater from the region in which the water resource was used. Technological improvements in instrumentation, telecommunications and microprocessors make possible regionalization of wastewater treatment administration and management while also making possible the matching of wastewater treatment facilities to specific sources of wastewater. Often there are benefits which can be obtained by matching unit process trains to handle domestic type wastewaters and industrial wastewaters rather than mixing the wastewaters and attempting to treat the composite flow.

Projections of estimates for "needed" new collector sewers and new interceptors should be made in light of changing philosophies concerning enhancement of local water budgets as opposed to regionalization and export of water resources from local water budgets.

New Collector Sewers. New collector sewer system are sewers and appurtenances designed to correct violations caused by discharges of raw sewage, pollution from failed septic tank systems and/or to comply with Federal, state, or local actions.

In 1982 approximately 71.5 percent of the population of the U.S.A. and territories was served by sewer systems. The 1982 Needs Survey projected new collector sewer needs based on the assumption that 90.2 percent of the year 2000 population would be served by sewer systems. Approximately 50 percent of this projected increase will be from increased growth. New collector sewers will be needed by an estimated 12,547 communities. Of those, 10,097 communities have populations of less than 5,000. Only 102 communities have populations in excess of 100,000. Except for a few instances, the collector sewers will flow by gravity. The typical per capita cost of a collector system is in the $700 to $800 range.

Interceptor Sewers. Interceptor sewers fit into a philosophy of regionalization of wastewater treatment. The concept is that a centralized facility is easier to admihister than decentralized facilities, that technical expertise can be concentrated at the centralized facility, and that economics of scale make centralization desirable. Centralization, or regionalization, means that all types of wastes are co-mingled and treated ultimately at one facility. In order to accomplish regionalization, interceptors are necessary. Almost invariably where interceptors are involved, pumping stations and force mains are also necessary because of terrain and distances involved. Not directly included in the various "needs" surveys are the operation and maintenance costs associated with power required for pumping or for intermediate aeration needed to prevent septic conditions in long sewers from the area of collection to the regional facility. Also not recognized in the "needs" survey is the philosophy of water resources export from local water budgets by means of the collection/interception system of sewers and surface discharge of effluents.

Combined Sewer Overflows

General. The significance of storm-water induced water pollution from combined sewer overflows (CSOs) is a national concern. Combined sewer and storm water systems are prevalent in older cities such as, San Francisco, which have since grown beyond the capacities of the system. Also, urban storm-water runoff has, in itself, been recognized as a major source of pollutants (Larson, 1979).

The CSO effluent during wet weather will include both the dry weather sewage discharge and the stormwater urban runoff. When the amount of urban runoff during a storm event exceeds the capacity of the facility an overflow event occurs, dumping stormwater and untreated sewage into receiving waters. A well known problem related to organic pollution is the depletion of instream dissolved oxygen by microbial breakdown of organic material. The depletion of the dissolved oxygen can then distroy fish and invertebrate populations, which are sensitive to depressed dissolved oxygen tensions. It has been found that CSO events intensified DO sags in the Milwaukee River. The CSO was found to contribute 40-50% of the annual BOD loading to the sediments (Field and Turkehaub, 1981).

The concentrations of fecal coliforms, indicating the presence of mammalian enteric wastes, have also been directly linked to CSO events. Although the fecal coliform are not harmful, they are associated with pathenogenic organisms. CSOs were the major source of fecal coliforms in the Milwaukee River. Removal of these overflows as predicted would nearly eliminate fecal coliforms standard violations. In Syracuse, N.Y. the only water quality parameters adversely affected by the CSO was fecal coliforms. Approximately 50% of the CSO events caused fecal coliform violations in Lake Owondaga (Gangly, 1982).

Other pollution problems associated with CSOs include nutrients, such as phosphorus and nitrogen; toxic organic pollutants; and heavy metals. The input of these pollutants into receiving waters from CSOs has initiated programs to study control mechanisms for pollution abatement. A project has been initiated

at the Manhattan College for defining criteria methodology for wet-weather water quality standards. This methodology will define the degree of treatment which would be most cost-effective to meet standards for a given receiving water.

Available technologies for the control of combined sewer overflows and urban stormwater runoff can be categorized into: (1) pollutant source control, (2) storage control, and (3) treatment facilities. These technologies must be adaptable to highly variable operating conditions during wet and dry weather and to site specific needs (Graham, 1979; Driscoll & Associates, 1981).

Controlling pollutants at their source involves defining which parameters are problem pollutants. During dry weather conditions the deposition of sewage solids in the collection system is the major source of BOD, total nitrogen, total phosphorous, and fecal coliforms. Thus, reduced sewer flushing would be used as a effective control method for these pollutants. Conversely if a problem pollutant is more prevalent in urban runoff waters then street sweeping, trash removal or air pollution would be the most effective control.

Storage control involves providing a basin of sufficient capacity to hold the entire volume of the overflow event. This stored volume can then be returned for treatment during dry weather, prior to discharge into the receiving water. This stored volume can also be released to the receiving stream when conditions would minimize water quality impacts. Generally storage basins are feasible only when there is adequate land for their construction, since operation and maintenance costs are small (Finnamore, 1982).

Treatment units used to control CSO pollution loadings do not effect the flow rate or the volume of the CSO discharge. They function to reduce the concentration of specific pollutants entering the receiving waters. These units are operated up to a specific design capacity with excess flows then being bypassed. Treatment types which appear to be the most cost-effective include: (1) microscreens (23 μ), (2) flocculation and sedimentation, (3) high-rate filtrations, (4) dissolved air flotation (Graham, 1979).

Microscreens are a physical treatment process which remove particulate material from the water. This reduces the amount of suspended solids being discharged, which reduces pollutants associated with solids such as BOD, DO, and nutrients. Due to the small pore size, 23 microns, the flow rate through the screens must be low, with an associated head loss and a short operating life. These screens perform well under variable flow and occupy minimum space; with disinfection more effective after solids removal.

Flocculation and sedimentation removes particulate material by gravitatinal settling of material aided by the flocculation of these particles by polar electrolytes. Flocculated particles, due to their larger size, exhibit a faster sedimentation rate. However, this type of removal is not limited to just the suspended solids but will also remove nutrients and organic compounds associated with the sediments. The clarified effluent can than be disinfected in the same tank. The settled sludge solids, usually high in organic toxins, heavy metals and nutrients must then be safely disposed.

High-rate filtration uses a fixed bed filter, usually anthracite coal above a sand filter, to remove suspended solids and pollutants from the water. This filtration can be more effective than screening since pollutants can be removed by straining, impingment, settling, and absorption. Filters are cleaned by periodic backwashing, with the backwash properly treated and disposed.

The dissolved air floatation process physically seperates particles by attaching a small air bubble to the solids and floating them to the surface. They can then be skimmed off the water surface. The advantage of this method over sedimentation is the shorter time frame to remove smaller particles, smaller land requirements, and less sludge to remove. Its disadvantages are greater energy requirements, high costs, and greater operator skill.

Other types of treatment facilities are available which may or may not be cost effective for a specific combined sewer system. These include carbon absorption, high-gradient magnetic seperation, biological treatment, and swirl and helical concentrations.

Analysis. In order to estimate the continuous, long term impact of CSO and urban runoff discharges on the quality of receiving waters, mathematical models have been employed. These models analyze the problem from two prospectives, surface runoff and drainage analysis, and receiving water analysis.

One of the most widely used models for surface runoff and drainage analysis is the Storm Water Management Model (SWMM). This model was developed by EPA, is inexpensive, and can be used in modular form if desired. This model will simulate continuously on a storm event basis. SWMM can compute the combined sanitary and storm runoff from several catchments and route flows through a specified sewer system. The runoff flow characteristics are based on the physical characteristics of the runoff area. The dry weather flow, in the absence of measured data, is developed by the SWMM program based on area, population density, land use, and number of dwellings.

The receiving waters are modeled by RECEIVE, incorporated as a block of the SWMM model. This RECEIVE model was originally derived from the Dynamic Estuary Model (DEM) and can be run over an unlimited number of time steps. RECEIVE has been used more for storm event simulation than continuous simulation.

Another well used model for CSO simulation is the Corps of Engineers Storage Treatment Overflow Runoff Model (STORM). STORM is inexpensive to acquire, easy to understand and can simulate continuously. STORM does not route flow and quality through an actual sewer network but estimates these parameters by calculating total watershed runoff and adding this to the dry weather flow. Any flow exceeding the facility treatment rate is considered an overflow event, which will depend on the total rainfall per hourly interval and the watershed characteristics. Each hourly overflow event has an associated pollutant load, dependent on pollutants available at the beginning of each hour, and the hourly runoff rate.

STORM has no receiving water model built-in but is directly compatible with a separate model Level III Receiving Water Model. This model computes DO sags downstream for point and nonpoint source loads. However, no flow routing is performed in the stream with DO sags based on average storm load and river flow. (Heinholtz et al., 1979).

The Continuous Stormwater Pollutant Simulation System (CSPSS) developed by CH2M Hill, Inc. is inexpensive, and easy to run. This model has been used to estimate the impact of CSO and urban runoff on receiving water quality on a continuous, long term basis. The CSPSS model is structured as a series of modules, each designed to perform computations on hydrography or water quality. These modules, which may be simulated on a continuous basis, include: 1) rainfall, 2) runoff, 3) runoff quality, 4) sewer system infiltration, 5) storage and or treatment, 6) dry-weather waste discharges, 7) receiving water stream flow, and 8) receiving water quality response. The runoff quality module simulates the processes of pollution accumulation and washoff for four parameters: five-day biochemical oxygen demand (BOD), total kieldahl nitrogen (TKN), lead (Pb), and suspended solids (SS) (Wycoff & Signf, 1981; Graham, 1979).

The receiving water response model is built-in as one of the modules. This module determines the water quality flucuations of the receiving stream immediately downstream of the urban stormwater runoff, CSO, wastewater treatment plant effluent, and upstream flow. The pollution parameters simulated are suspended solids, minimum concentrations of dissolved oxygen, and total and dissolved lead concentrations.

In general each of these models must be calibrated for the specific location to be analyzed. Calibration involves supplying historical or base line data for each module or program segment which provide both the physical and chemical parameters necessary to simulate and predict future trend variations.

Calibration accuracy of the model can be verified by comparing actual values to model predicted values after a series of storm events. Adjustment can then be made to bring predicted values to within an acceptable range of the actual measured value. What range is acceptable should be evaluated for each parameter based on its natural variability.

SECTION SIX
SUMMARY AND CONCLUSIONS

Under the Clean Water Act, all municipalities with point discharges must provide wastewater treatment for present and projected populations in order to meet effluent limitations and water quality standards. Effluent limitations for publically owned treatment works (POTWs) are set at secondary treatment, with additional treatment potentially required if water quality standards for the receiving water are not met. According to EPA's biennial survey (the Needs Survey) of the municipal needs to meet these requirements, $92.6 billion of capital would be required to meet present needs. EPA's National Municipal Policy requires that as many needs as possible be met by 1988, and through the provision of construction grants, EPA has played a significant role in achieving this goal. However, even with EPA's substantial contribution in assisting municipalities in complying with water quality regulations, it is unlikely that all needs will be met by 1988.

Two questions arise: (1) can funding be accelerated to meet POTW construction needs sooner, and (2) are the benefits of these needs justified in relation to their costs. The first question is already being addressed by EPA's POTW Construction Grant Task Force. This study endeavors to find a partial answer to the second question by providing a national overview of the water quality benefits of the Construction Grants Program. Specifically, four objectives were identified:

1) Determine what percentage of projects in the 1982 Needs Survey are (or would be) located on water bodies currently meeting water quality standards;

2) Describe any general relationships between different types of projects, costs, population served, location, and other parameters and whether or not the corresponding receiving water is currently meeting water quality standards;

3) Analyze whether projects located on waters not meeting standards for their designated uses would contribute to significant water quality improvements; and

4) Recommend improvements in the grants process that would enhance the water quality benefits of the Construction Grants Program.

In order to achieve these objectives, a methodology was developed and implemented. The methodology consisted of five steps: (1) selection of a representative sample; (2) verification of sample representativeness; (3) assessment of receiving water quality for sample facilities; (4) extrapolation of results to the entire Needs Survey;and (5) analysis of water quality benefits of each Needs Survey category.

The initial representative sample was selected after dividing the Needs Survey population into 19 sub-populations from which random samples were taken. This stratified approach insured that important characteristics such as treatment type, cost, and region were fully represented in the sample. Otherwise, a random sample taken of such a large population could, by chance, omit all facilities with certain critical characteristics. For each of the 18 treatment plant sub-populations, 10 random samples were selected; for the CSO sub-population, 15 samples were selected. This totaled 195 facilities. However, after subsequent data collection efforts, 95 were deleted due to insufficient data, leaving 100 treatment plants and CSOs in the final sample.

Several analyses were then performed. First, statistical tests were performed which confirmed that the final sample of 100 facilities was representative of the original populations. This fact provided the justification for extrapolating any sample results to the Needs Survey population. The second set of analyses focused on achieving the first objective: determining what percentage of projects are(or would be) located on water bodies already meeting water quality standards. Analysis of the sample revealed that 52 percent or 8200 (± 1600) treatment facilities are or will be located on receiving waters already meeting water quality standards. These account for 31 percent or $7.5 (± 1.1) billion of the $24.1 billion of needs for treatment facilities. The analysis did not quantitatively estimate analogous results for the $68.5 billion requested for non-treatment municipal projects.

Further analysis was undertaken to fulfill the second objective. Several relationships were found between different characteristics of a particular facility and the quality status of its receiving water. Parameters found most pertinent were the present effluent character (primary, secondary, etc.), the effluent flow, the resident population served, and the capital cost of the proposed improvement. As expected, receiving waters meeting standards correlated with a high present level of treatment and low effluent flow. Receiving waters meeting water quality standards also correlated with smaller facilities as indicated by lower resident population served and a lower capital improvement cost.

The remainder of the study focused on identifying the effect proposed grant projects may have on water quality, i.e., their water quality benefits, in fulfillment of the third objective. Treatment plant categories (I and II) were analyzed quantitatively using the sample facilities, supplemental water quality data, and a water quality model.

The first analysis was an examination of each facility located on receiving waters not meeting standards to assess whether or not the proposed construction could reasonably be expected to reduce discharges of the problem pollutant(s). Case by case analysis showed that: (1) 48 percent of the facilities (unadjusted) would probably contribute toward meeting water quality standards; (2) 39 percent would probably not contribute toward meeting standards; and (3) 13 percent could not be assessed. For those that would not make a contribution, 5 percent appeared unlikely to do so because the proposed treatment improvement would not be appropriate for reducing concentrations of the problem pollutant(s).

For the other 34 percent, a more comprehensive analysis might have yielded different conclusions. For these plants, funds have been requested for new or enlarged facilities which will tend to increase effluent loads at that particular point. However, considering that these plants may be part of a regional plan or might simply be replacing less efficient facilities, it may be understating their water quality benefits to say that they have none.

These analyses were supplemented by detailed modeling of six case sites. For three facilities, construction would have a negative effect on the quality of the receiving water. This occurred at sites similar to those just described. At the remaining three sites, significant water quality improvements were predicted by the modeling. The following factors influenced the degree of influence the proposed grant might have on water quality:

1) The change in effluent loading;

2) The ratio of (1) to the total loading including background sources; and

3) The size of the receiving water.

Two cost effectiveness measures were also developed. The first compared the cost of construction with the reduction in loading that would result. Values ranged from $7,700 to $26,800 per kilogram of BOD_5 removed per day. The second compared the cost of construction with predicted changes in water quality. It was estimated that it would cost from $1.50 to $52.40 for every cubic meter of water per year upgraded from non compliance into compliance with water quality standards.

The water quality analysis of the non-treatment categories of proposed grants was performed qualitatively since these projects did not usually have identifiable water quality benefits. In most cases, the water quality benefits of infiltration/inflow remedies, sewer rehabilitation, new collector sewers, new interceptor sewers, and/or combined sewer overflow remedies are limited to their effect on the treatment plant to which they ultimately discharge. Category III projects (I/I control and sewer rehabilitation) can reduce the volume of, and improve the predictability of excess waters. This could enhance operation of a treatment facility, which would in turn improve water quality.

New collector and interceptor sewers (category IV) are generally indicative of growth and therefore result in increasing effluent flows which reduce water quality. However, their absence may cause degradation in the groundwater or a deterioration in sanitation. Combined sewer overflow (CSO) correction projects (category V) exhibit a trade-off between the cost of expanding treatment and/or holding facilities versus the environmental damage from direct discharge of untreated storm and sewer wastes during periods of wet weather.

Three recommendations and observations are offered as a result of this analysis:

1) Although water quality improvements may occur at sites located on receiving waters already meeting standards, resources are probably more cost-effective when used on poorer receiving waters. However, even facilities located on sub-standard receiving waters may not yield water quality benefits because the POTW has little or no influence on the problem pollutants. Addressing more pressing problems sooner while seeking those sites where POTW construction will make progress would increase the water quality benefits from limited construction grant funds. For example, this calls into question the cost-effectiveness of using grant funds to meet technology based requirements when many POTWs affected by these requirements are located on waters already meeting standards.

2) Only treatment facilities (categories I and II) have direct influence on water quality. The non-treatment facilities (categories III, IV, and V) influence water quality only to the extent that they affect the operation of the treatment plant they serve. Consequently, it is more difficult to identify particular water quality benefits of these projects. Non water quality benefits may result from any of the project categories.

3) Even if grant funds are targeted first for a maximum yield of water quality benefits, needs are still substantially greater than historical funding for the program. This makes it unlikely that even high priority facilities can be completed by 1988 to fulfill the goals of the National Municipal Policy. Budgetary decisions will still have to be made by insuring that expenditures first address projects having the greatest benefits.

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APPENDIX A: DATA BASE

Facility Name	Authority	City	State	Group
VINCENT STP	VINCENT, TOWN OF	VINCENT	AL	5
OAKDALE WWTP	OAKDALE .CITYOF	OAKDALE	CA	8
SAN JUAN BAUTISTA WWTP	SAN JUAN BAUTISTA BD	SAN JUAN BAUTISTA	CA	8
SAUSALITO-MARIN CITY WWTP	SAUSALITO-MARIN CITY S.D.	SAUSALITO	CA	8
DE BEQUE STP	DE BEQUE, TOWN OF	DE BEQUE	CO	8
DELTA WWTP	DELTA MSSD	DELTA	CO	8
ENGLEWOOD/LITTLETON WWTP	ENGLEWOOD/LITTLETON WWTA	ENGLEWOOD	CO	16
WATERBURY WPCF	WATERBURY, CITY OF	WATERBURY	CT	10
WEST HARTFORD SEWER SYS	HARTFORD CHIEF EXECUTIVE	WEST HARTFORD	CT	19
JOHN M LECATO STP	BUSBEX COUNTY COUNCIL	LEWES	DE	1
MANDARIN DISTRICT STPs	JACKSONVILLE.CITY OF.DEPT	JACKSONVILLE	FL	8
LAKE CITY STP	LAKE CITY, CITY OF	LAKE CITY	FL	13
PENNY FARMS STP	PENNEY FARMS, TOWN OF	PENNEY FARMS	FL	14
SOUTH PATRICK SHORES STP	BREVARD CO BOARD OF COMM	SATELLITE BEACH	FL	8
ST PETERSBURG NE DIST WPC	ST PETERSBURG.CITY OF	ST PETERSBURG	FL	13
WINTER GARDEN REC WWTP	WINTER GARDEN.CITY OF	WINTER GARDEN	FL	4
CEDARTOWN WPCP NO. 1	CEDARTOWN, CITY OF	CEDARTOWN	GA	13
CAMP CREEK STP	FULTON CO BD OF COMMISSIO	COLLEGE PARK	GA	13
SOUTH COLUMBUS WPCP	COLUMBUS BD OF WAT COMM.	COLUMBUS	GA	4
KAPAA WWTP	KAUAI, COUNTY OF	KAPAA	HI	7
CALAMUS STL	CALAMUS CITY OF	CALAMUS	IA	9
ELKADER WWTP	ELKADAR, CITY OF	ELKADER	IA	8
GALVA WWTP	GALVA, TOWN OF	GALVA	IA	18
MARSHALLTOWN WWTP	MARSHALLTOWN WATER WORKS	MARSHALLTOWN	IA	16
NEW LONDON WWTP	LONDON .CITYOF NEW	NEW LONDON	IA	17

APPENDIX A. DATA BASE (CONTINUED)

Facility Name	Authority	City	State	Group
NEWTON SOUTH WWTP	NEWTON, CITY OF	NEWTON	IA	16
POLK CITY-WWTP	POLK CITY, CITY OF	POLK CITY	IA	9
WATERLOO WWTP	WATERLOO .CITYOF	WATERLOO	IA	16
WEST UNION NORTH WWTP	WEST UNION, CITY OF	WEST UNION	IA	17
DIAMOND PARK/PARADISE PT	DIAMOND PARK/PARADISE PT	PRIEST RIVER	ID	9
CHICAGO MSD-CALUMET STN	CHICAGO MSD	CHICAGO	IL	10
CORDOVA STP	CORDOVA, VILLAGE OF	CORDOVA	IL	12
ITASCA WWTF	ITASCA .VILLAGEOF	ITASCA	IL	10
KEWANEE STP	KEWANEE .CITYOF	KEWANEE	IL	10
NEW BADEN STP	NEW BADEN, VILLAGE OF	NEW BADEN	IL	3
BAYBROOK STP	BAYBROOK .VILLAGEOF	BAYBROOK	IL	12
STAUNTON EAST STP	STAUNTON, CITY OF	STAUNTON	IL	11
WASHBURN SEWER & STP	WASHBURN, VILLAGE OF	WASHBURN	IL	11
CLARK CITY REGIONAL STP	CLARK CITY SEWER CONN.	CLARKSVILLE	IN	1
HOBART WWTP	HOBART, BOARD OF PUBLIC	HOBART	IN	10
PORTLAND WTP	PORTLAND, CITY OF	PORTLAND	IN	19
PLYMOUTH TREATMENT PLANT	PLYMOUTH, TOWN OF	PLYMOUTH	MA	10
WEBSTER STP	WEBSTER EAST VILLAGE	WEBSTER	MA	10
CALVERT CO WWTP NO 7	CALVERT CO SAN DIST	PRINCE FREDERICK	MD	12
CENTER CREEK WWTP	CENTER CR WW AUTHORITY	CARL JUNCTION	MO	8
LAKE ADELLE AERATED LAGOO	LAKE ADELLE SEWER DISTRIC	CEDAR HILL	MO	6
ST CHAS MO RIVER STP	ST CHARLES CITY OF	ST CHARLES	MO	7
KREGAN BAYOU STP	HARR. CO. WWMD	BILOXI	MS	13
BLUE SPRINGS WWTP	BLUE SPRINGS SD	BLUE SPRINGS	MS	15

APPENDIX A. DATA BASE (CONTINUED)

Facility Name	Authority	City	State	Group
MEADVILLE LAGOON	MEADVILLE, TOWN OF	MEADVILLE	MS	6
TAYLORSVILLE LAGOON	TAYLORSVILLE, TN OF	TAYLORSVILLE	MS	5
MARIETTA LAGOON	MARIETTA, TOWN OF	MARIETTA	NC	6
MORGAN'S CORNER WWTP	PASQUOTANK CO	MORGAN'S CORNER	NC	15
NORMAN WTP	NORMAN, TOWN OF	NORMAN	NC	15
NEHAWKA WWTP	NEHAWKA .VILLAGEOF	NEHAWKA	NE	9
DOVER WWTP	DOVER .CITYOF	DOVER	NH	1
E WINDSOR MUA WWTP	UPPER MILLSTONE RSA	EAST WINDSOR	NJ	10
ENDICOTT STP	ENDICOTT, VILLAGE OF	ENDICOTT	NY	19
LIMA STP	LIMA, VILLAGE OF	LIMA	NY	11
MAMARONECK SAN. SEW. DIST	WESTCHESTER CO DEP	MAMARONECK	NY	1
BUCYRUS WWTP	BUCYRUS, CITY OF	BUCYRUS	OH	10
ELMORE STP	ELMORE, VILLAGE OF	ELMORE	OH	19
OSTRANDER STP	OSTRANDER .VILLAGEOF	OSTRANDER	OH	3
DURANT STP	DURANT, CITY UTIL AUTH	DURANT	OK	5
WELLSTON LAGOON	WELLSTON PWA	WELLSTON	OK	6
COTTAGE GROVE STP	COTTAGE GROVE .CITYOF	COTTAGE GROVE	OR	19
ROSEBURG STP	ROSEBURG .CITYOF	ROSEBURG	OR	16
PENN FOREST TWP SS	PENN FOREST TWP S. A.	ALBRIGHTSVILLE	PA	3
CORSICA BORO SEWER SYS	CORSICA, BOROUGH OF	CORSICA	PA	3
HENDERSONVILLE STP	CECIL TWP BOARD OF SUPER	HENDERSONVILLE	PA	11
LINCOLN PARK STP	PENN HILLS TOWNSHIP MA	PITTSBURGH	PA	12
JACKSON WWTP	JACKSON, TOWN OF	JACKSON	SC	14
ST GEORGE WWTP	ST GEORGE, TOWN OF	ST GEORGE	SC	15
WASTEWATER TREATMENT PLT	ASHLAND CITY, TOWN OF	ASHLAND CITY	TN	16

APPENDIX A: DATA BASE (CONTINUED)

Facility Name	Authority	City	State	Group
MEDINA WEST WWTP	MEDINA, TOWN OF	MEDINA	TN	15
VIOLA WWTP	VIOLA, CITY OF	VIOLA	TN	15
SOCORRO STP	EL PASO, CITY OF	EL PASO	TX	6
FRITCH STP	FRITCH, CITY OF	FRITCH	TX	5
DOS RIOS STP	SAN ANTONIO, CITY OF	SAN ANTONIO	TX	13
SOUTH STP	SILSBEE, CITY OF	SILSBEE	TX	5
SOUTH HOUSTON STP	SOUTH HOUSTON	SOUTH HOUSTON	TX	14
WALLIS STP	WALLIS	WALLIS	TX	5
AMERICAN FORK LAGOONS	AMERICAN FORK, TOWN OF	AMERICAN FORK	UT	17
ANTIMONY LAGOON	ANTIMONY, TOWN OF	ANTIMONY	UT	16
NEOLA LAGOONS	NEOLA, TOWN OF	NEOLA	UT	16
PROVIDENCE WWTP	PROVIDENCE, CITY OF	PROVIDENCE	UT	17
RANDOLPH SEWAGE LAGOON	RANDOLPH, TOWN OF	RANDOLPH	UT	16
SIGURD LAGOON	SIGURD, TOWN OF	SIGURD	UT	16
SPANISH FORK LAGOONS	SPANISH FORK, TOWN OF	SPANISH FORK	UT	16
SPRING CITY SEWAGE LAGOON	SPRING CITY CORPORATION	SPRING CITY	UT	16
LYNCHBURG STP	LYNCHBURG, CITY OF	LYNCHBURG	VA	1
BENNINGTON WPCP	BENNINGTON, TOWN OF	BENNINGTON	VT	19
BREMERTON # 2 CHARLESTON	BREMERTON, CITY OF	BREMERTON	WA	7
RETAIL TREATMENT PLANT	PORT ORCHARD PUBLIC WORKS	PORT ORCHARD	WA	7
NISQUALLY RIVER BASIN STP	PIERCE COUNTY	TACOMA	WA	6
NORTHEND STP	TACOMA, CITY OF	TACOMA	WA	7
CLOVER S.D. #1 STP	HERSBTER, VILL. OF	HERSBTER	WI	12
KANAWHA CO PSD #27 STP	KANAWHA CO PSD	BLUE CREEK	WV	11
MULLENS STP	MULLENS, CITY OF	MULLENS	WV	2
KANAWHA CO PSD #32 STP	KANAWHA CO PSD	TORNADO	WV	11

A 4

APPENDIX B
STATISTICAL ANALYSIS

Prior to testing if the sample data was representative of the population data a Kolmogorov-Smirov test was performed to determine if the population data was normally distributed. Results of this test showed that the data for parameters residential population, effluent flow, and design flow were not normally distributed. In order for the population data to meet the assumptions of normality the logarithmic transformation was applied to groups 1 through 18 and CSOs. The success of the transform was reconfirmed by again performing the Kolmogorov-Smirov test; parametric statistics could then be used. The results of this test for the cost parameter was slightly different with the data for small costs facilities being normally distributed without transformation, the medium cost facilities and CSOs being normally distributed after the logarithmic transformation and the large cost facilities not normally distributed in either case. This can be explained by examining the cost distribution before dividing it into three categories. For most groups, the small category coincidentally captured the peak of the distribution function so that the distribution is approximately normal. The medium cost category captured costs that were, as they became greater, also became increasingly skewed; but not beyond the point where a logarithmic transformation would not produce a normal distribution. Finally, the large costs plants were in the ranges of extreme skewness. The logarithmic transformation reduces the skew, but not to the point where the assumption of normality would be valid.

The parametric statistical analysis used was an approximate t'-test. The student t'-test could not be used since the variances of the data sets were not equal. The approximate t'-test was calculated using:

$$t'\text{-value} = \frac{\bar{Y}_1 - \bar{Y}_2}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$$

where: $\bar{Y}$ = mean
S^2 = variance
N = sample size

This t'-value was then compared to a critical t'-value calculated as a weighted average of the critical values of t' based on the corresponding degrees of freedom of the two data sets (Sokal and Rohlf, 1969). The critical value is calculated by:

$$t'_\alpha = \frac{t_{\alpha_1} \frac{S_1^2}{N_1} + t_{\alpha_2} \frac{S_2^2}{N_2}}{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}$$

where: t_{α_1} = critical values of t' for sample 1.
t_{α_2} = critical values of t' for sample 2.

When the t'value is greater than the critical t'value then the means are significantly different at the 95% confidence level. The results of this analysis are given in Table B1 through B3.

This same logarithmic transformation and approximate t'test procedure, was used to determine if there was a significant difference between the means of various parameters for facilities located on receiving waters meeting standards and those on waters not meeting standards. The parameters evaluated were facility cost, effluent flow, and the residential population served by the facility.

The results of this analysis (Table B4) show that when considering number of facilities, there was a significant difference between all parameters for facilities located on receiving waters meeting standards and those that do not. When the analysis was performed weighting by cost, there was a significant difference only for the cost parameter. The parameters effluent flow and residential population served were not statistically different at a 95% confidence level.

After determining what percent of the sampled facilities were on receiving waters meeting the standards for their designated uses, the percentage was extrapolated to the population data. This was done by region, cost category, and treatment type, for data weighted by facility numbers and facility cost. In weighting by facility costs, the N was calculated by summing the cost for all facilities then dividing by the total number of facilities. This number was then divided into the total cost for the sampled facilities for each of the 18 groups.

Confidence levels were then calculated for the percent of the population located on receiving waters having water quality meeting standards. Since this data has a bionomial distribution the following statistic was used (Li, 1964):

$$u = \frac{\bar{y} - \mu}{\sqrt{\frac{\mu(1-\mu)}{N}}}$$

u = z score at 95 percent.
y = sample mean.
μ = population mean.
N = sample size.

This equation was solved for the population mean (μ) using a 95 percent confidence level. This yields a quadratic equation, that when solved, calculates a high and low value for the confidence interval. The confidence level calculated for weighting by facility numbers and by cost are given in Tables B5 and B6.

Table B1. Comparison of Mean Cost Between Sample Data and Population Data Sets For Each Group

Group	t Statistic	Critical t	Significant Difference
1. Northeast/Large Cost/ST	N/A	N/A	N/A
2. Northeast/Medium Cost/ST	N/D	N/D	N/D
3. Northeast/Small Cost/ST	0.86	3.17	NO
4. South/Large Cost/ST	N/A	N/A	N/A
5. South/Medium Cost/ST	0.46	2.57	NO
6. South/Small Cost/ST	6.07	4.29	NO
7. West/Large Cost/ST	N/A	N/A	N/A
8. West/Medium Cost/ST	1.77	2.36	NO
9. West/Small Cost/ST	2.19	2.77	NO
10. Northeast/Large Cost/AT	N/A	N/A	N/A
11. Northeast/Medium Cost/AT	1.27	2.56	NO
12. Northeast/Small Cost/AT	0.46	2.77	NO
13. South/Large Cost/AT	N/A	N/A	N/A
14. South/Medium Cost/AT	2.62	4.49	NO
15. South/Small Cost/AT	0.43	2.57	NO
16. West/Large Cost/AT	N/A	N/A	N/A
17. West/Medium Cost/AT	2.21	4.25	NO
18. West/Small Cost/AT	0.80	2.42	NO
19. CSOs	1.11	3.15	NO

Notes: ST = secondary treatment
AT = advanced treatment
N/D = insufficient data for statistical analysis
N/A = statistical analysis not applicable.

The t'statistic was used with log transformation on Medium cost plants, and no transformation on small cost facilities at a 95 percent confidence level.

Table B2. Comparison of the Mean Effluent Flow Between the Sample Data and Population Data Sets for Each Group

Group	t Statistic	Critical t	Significant Difference
1. Northeast/Large Cost/ST	0.64	4.11	NO
2. Northeast/Medium Cost/ST	N/D	N/D	N/D
3. Northeast/Small Cost/ST	N/D	N/D	N/D
4. South/Large Cost/ST	0.21	3.11	NO
5. South/Medium Cost/ST	0.73	2.76	NO
6. South/Small Cost/ST	0.42	12.40	NO
7. West/Large Cost/ST	0.38	2.91	NO
8. West/Medium Cost/ST	0.09	2.56	NO
9. West/Small Cost/ST	1.22	3.17	NO
10. Northeast/Large Cost/AT	0.47	2.28	NO
11. Northeast/Medium Cost/AT	1.48	12.63	NO
12. Northeast/Small Cost/AT	0.38	8.73	NO
13. South/Large Cost/AT	0.86	2.94	NO
14. South/Medium Cost/AT	1.18	12.59	NO
15. South/Small Cost/AT	1.01	12.56	NO
16. West/Large Cost/AT	0.05	2.60	NO
17. West/Medium Cost/AT	2.12	10.75	NO
18. West/Small Cost/AT	6.25	1.96	YES
19. CSOs	0.51	2.77	NO

Notes: ST = secondary treatment
AT = advanced treatment
N/D = insufficient data for statistical analysis.

The t'statistic was used with log transformated data at the 95 percent confidence level.

Table B3. Comparison of the Residential Population Means Between the Sample Data and the Population Data for Each Group

Group	t Statistic	Critical t	Significant Difference
1. Northeast/Large Cost/ST	0.04	4.11	NO
2. Northeast/Medium Cost/ST	N/D	N/D	N/D
3. Northeast/Small Cost/ST	N/D	N/D	N/D
4. South/Large Cost/ST	0.01	3.12	NO
5. South/Medium Cost/ST	0.92	2.76	NO
6. South/Small Cost/ST	1.25	12.56	NO
7. West/Large Cost/ST	1.65	2.84	NO
8. West/Medium Cost/ST	0.07	2.56	NO
9. West/Small Cost/ST	1.22	3.17	NO
10. Northeast/Large Cost/AT	0.55	2.28	NO
11. Northeast/Medium Cost/AT	0.47	12.61	NO
12. Northeast/Small Cost/AT	2.22	3.29	NO
13. South/Large Cost/AT	0.30	2.94	NO
14. South/Medium Cost/AT	0.32	12.66	NO
15. South/Small Cost/AT	0.09	12.62	NO
16. West/Large Cost/AT	0.00	2.62	NO
17. West/Medium Cost/AT	3.08	9.07	NO
18. West/Small Cost/AT	11.99	2.12	YES
19. CSOs	0.20	2.77	NO

Notes: ST = secondary treatment
AT = advanced treatment
N/D = insufficient data for statistical analysis

The t'statistic was used with log transformed data at the 95 percent confidence level.

Table B4. Comparison between Parameter Means for Receiving Water Which Meet Water Quality Standards and Those Which Do Not

Parameter	Number of Facilities t-statistic	Number of Facilities Critical t[1]	Significant Difference?	Cost Weighted t-statistic	Cost Weighted Critical t[1]	Significant Difference?
Project Cost (millions of dollars)	3.18	2.06	Yes	2.90	2.01	Yes
Effluent Flow (MGD)	2.36	2.06	Yes	0.81	2.06	No
Resident Population Served	2.49	1.96	Yes	0.85	2.06	No

[1] Statistical analysis at the 95 percent confidence level.

Table B5. Statistical Results and Extrapolation for the Population Data When Weighted by Number of Facilities.

Classification	Number of Facilities in Sample	Percent of the Sample Facilities on Waters Meeting Standards	95% Interval (Percent)	Extrapolated to Entire Population	95% Confidence Interval (Facilities)
By Region:					
Northeast	30	41	±40	2530	±1000
South	30	63	±27	3300	± 880
West	34	54	±30	2370	± 700
By Cost Magnitude:					
Large	35	22	±54	140	± 80
Medium	29	43	±39	2170	± 840
Small	30	58	±29	5880	±1717
By Treatment Type:					
Secondary Treatment	42	53	±27	6170	±1690
Advanced Treatment	52	49	±27	2040	± 540
All Treatment Plants	94	52	±19	8200	±1600
CSOs	6	33	±76	360	± 270

Table B6. Statistical Results and Extrapolated for the Population Data When Weighted by Cost of Facilities

Classification	N*	Dollars in Sample Located on Waters Meeting Standards (Percent)	95% Interval (Percent)	Extrapolated to Entire Population ($ Millions)	95% Confidence Interval ($ Millions)
By Region:					
Northeast	153	24	±27	3640	±983
South	160	43	±18	2129	±370
West	68	39	±29	1570	±450
By Cost Magnitude:					
Large	352	21	±20	3210	±640
Medium	25	44	±40	3070	±1240
Small	4	57	±66	1070	±710
By Treatment Type:					
Secondary Treatment	152	33	±22	4910	±1090
Advanced Treatment	229	27	±21	2500	±520
All Treatment Plants	381	31	±15	7500	±1100

*For detailed explanation see text.

APPENDIX C. STREETER-PHELPS MODEL

A two-step application of the Streeter-Phelps model was used to estimate the effects of Construction Grant expenditures on water quality. For each site to be analyzed, the model was first calibrated for background dissolved oxygen and BOD_5 concentrations using known present effluent loadings for the site and the appropriate frequency of violations (trial and error).

Using these values and setting the effluent load and concentration to the expected value after planned construction, the frequency of violations was calculated. This value was compared to the present frequency of violations to determine the water quality improvement. The equations are defined as follows:

Let:

C = dissolved oxygen (mg/l);

C_o = initial dissolved oxygen (mg/l);

C_s = saturation concentration of dissolved oxygen (mg/l);

C_d = critical dissolved oxygen deficit (mg/l);

C_c = critical dissolved oxygen (the water quality standard) (mg/l);

T = stream temperature (^oC);

T_1, T_2, T_3 = temperature constants for specific streams;

K_1, K_2 = coefficients of deoxygenation and reaeration, respectively (per day);

TC = time required to each critical point (days);

W = wasteload discharge from plant (mg/sec);

L_o = ultimate BOD at point of discharge (mg/l);

W_B = background waste (mg/sec);

WC = concentration of effluent waste (mg/l);

Q_E = effluent flow (MGD);

Q = background flow (m^3/sec);

Q_T = flow just after point of discharge (m^3/sec.);

where:

$$W = 43.808*Q_E*WC;$$

$$Q_T = Q+0.0483*Q_E;$$

$$L_o = (W+W_B)*0.001/Q_T;$$

$$T = T_1 Sin(2*3.1416*DAY/365-T_2)+T_3;$$

$$K_1 = 0.23*(1.047)^{(T-20)};$$

$$K_2 = 0.46*(1.024)^{(T-20)};$$

$$TC = 1/(K_2-K_1)*ln(K^2/K_1*(1-C_o*(K_2-K_1)/(K_1*L_o)));$$

$$C_d = K_2/K_1*L_o*e^{(-K_1*TC)};$$

$$C_s = 14.65-0.4102*T+0.007991*T^2-7.777*(10^{-5})*T^3;$$

$$C = C_s-C_d;$$

And if $C < C_c$ a violation has occurred.

The following assumptions have been used:

1. The Streeter-Phelps model for DO is applicable;
2. Photosynthesis and benthic oxygen demands are negligible;
3. The saturation level of DO (C_s) is dependent only on temperature;
4. The reaeration rate (K_2) and deoxygenation rate (K_1) are dependent only on temperature; and
5. Temperature values vary through the year in a regular (usually sinusoidal) fashion.

The Streeter-Phelps model was assumed relevant to this analysis because of its wide application in similar problems and because of the simplicity of its formulation. This model captures the essential physical and biochemical relationships of BOD and DO in a typical stream necessary fpr a policy-oriented study such as this.

The remaining four assumptions pertain to the application of the Streeter-Phelps equation. Although the validity of each is site dependent, all of these assumptions are made for each site. The rationale for this simplified approach is that by avoiding extensive calibration efforts, a more thorough examination can be made of the larger policy issues, while modeling the essential water quality parameters. Moreover, since the assumptions are applied uniformly, valid comparisons are obtained.

The first of these simplifications is that the effects of photosynthesis and benthic deposits on the dissolved oxygen concentration are negligible. This is generally a valid assumption and reduces the number of parameters required in the model.

The saturation level of dissolved oxygen has been taken solely as a function of temperature, as have the reaeration and deoxygenation rate constants. For the saturation level this is generally a good assumption. Although the rate constants do depend on temperature, the reaeration rate also varies with velocity and channel shape while the deoxygenation rate varies with the type of waste. Since calibration of the model has not been performed based on site-specific parameters, it was not appropriate to calibrate for this.

The final major assumption incorporated into the analysis is that temperature varies in a "smooth" manner. Since daily temperature values are generally unavailable, and were not for the chosen reaches, monthly mean temperatures were fitted to a curve, ususally a sine wave, from which daily temperatures could be calculated.

An Overview of the Construction Grants Set-Aside Programs

and

An Analysis of Potential Modifications to These Programs

Prepared By:

Office of the Comptroller
U.S. Environmental Protection Agency

November, 1984

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CHAPTER I: INTRODUCTION

A. Context and Objectives

This paper describes the set-aside provisions in the Construction Grants Program, identifies the major policy issues associated with these programs, and identifies and analyzes a variety of policy alternatives for modifying the programs. This paper was prepared by EPA's Office of the Comptroller, in cooperation with the Task Force on the Construction Grants Program. This paper will be presented to the Deputy Administrator to help him formulate the Agency's legislative package for modifications to the Construction Grants Program. In addition, a summary of this paper will be included in the final Task Force report.

The set-aside provisions in Title II of the Clean Water Act authorize, and in some cases mandate, the setting aside of certain percentages of Construction Grant funds to be used for financing selected types of projects or activities. For example, one set-aside authorizes the setting aside of 4% of states' allotments to help finance state costs of managing delegated responsibilities under the Construction Grants program, and for selected other purposes. There are also set-asides for "Innovative/Alternative" (I/A) projects, for funding certain types of projects in small communities and in highly dispersed areas of larger municipalities, and for funding water-related environmental planning studies.

There are two major reasons why the Office of the Comptroller, in its role as a member of the Task Force, is assessing the possible need for modifications to the set-aside programs. First, the set-aside provisions exert a strong influence [illegible] spending patterns for a large amount of funds made available under the Const[illegible]ion Grants program. Therefore, it is important to consider fully the policy objectives of the set-asides, their actual effects (e.g., are there any unintended detrimental effects of the programs), and ways of improving these programs, especially in light of their potential for helping promote the Task Force's "consensus goals" for the future of the Construction Grants

Program. Second, the Task Force is considering an approach under which the federal government would help states establish revolving funds, from which the states would finance construction projects. Such a major revision may make it appropriate to revise some or all of the set-aside programs in order to help promote this objective.

B. Methodology

This paper was prepared by American Management Systems, Inc. (AMS), under contract to the Office of the Comptroller. AMS reviewed all pertinent written documentation, including prior studies, and relevant statutory and regulatory provisions. In addition, AMS conducted interviews with EPA managers and staff who are involved in managing the set-aside programs, at both the federal and state levels, and with selected members of the Task Force; see Appendix A for a list of individuals consulted. Quantitative data used in this report was obtained from Office of Water reports and from the Agency's Financial Management System, with the assistance of the Grants Administration Division.

Several interim documents were prepared as part of this study; they were circulated for comment to the persons listed in Appendix A. (That appendix also identifies those persons who returned comments.) Specifically, one of the interim documents, dated September 20, 1984, was An Overview of Construction Grants Set-Aside Programs and Policy Issues Associated With These Programs. After reviewing comments, we used that interim document as the basis for Chapter II of this final paper. In addition, in late October we circulated an interim analysis of potential modifications to the set-aside programs. That document, entitled Interim Progress on the Definition and Analysis of Alternatives for the Construction Grants Set-Aside Programs, was also circulated to the persons listed in Appendix A. We used comments received on that document to help formulate our analysis which appears in Chapter III of this final paper.

C. Organization

Chapter II of this paper presents an overview of the set-aside programs and a summary of the policy issues associated with each. Chapter III identifies and analyzes a variety of policy options for modifying these programs.

Appendix A presents a list of persons consulted and identifies those who submitted comments on the interim documents noted above. Appendix B provides relevant backup detailed information on the set-aside programs.

CHAPTER II: OVERVIEW OF THE SET-ASIDE PROGRAMS

A. Purpose of this Chapter

This chapter provides a brief overview of each of the four set-aside programs under the Construction Grants Program. The intent is to describe the basic design of each program and to identify the key policy issues associated with each. For a more detailed description of the programs and associated policy issues, readers can consult the interim document upon which this chapter is based, An Overview of Construction Grants Set-Aside Programs and Policy Issues Associated With These Programs (September, 1984).

The following descriptions of each of the set-aside programs is summarized in Exhibit II-1 on the following page.

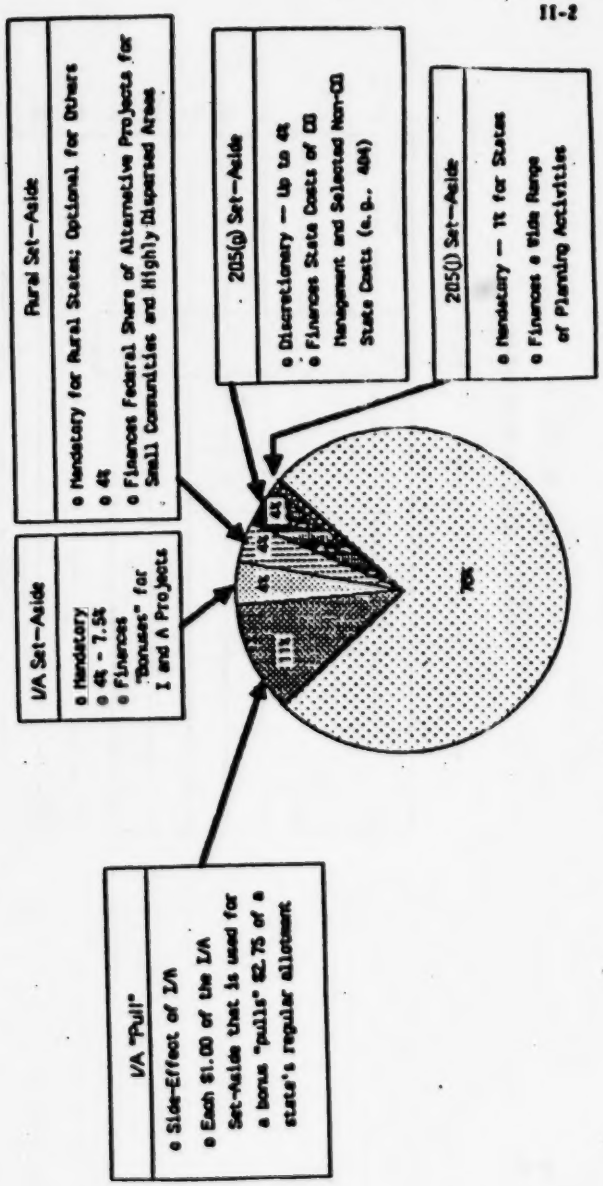
B. State Management Assistance Set-Aside

Under section 205(g) of the Clean Water Act, EPA is authorized (but not required) to set aside up to 4% or $400,000 (whichever is greater) of a state's Construction Grants allotment to be used directly by the state to finance the reasonable costs of administering delegated activities under the Construction Grants program or selected other EPA programs -- e.g., approved Section 402 (NPDES) and 404 (Dredge and Fill) programs. States generally use these amounts to finance the salaries of state employees who administer delegated functions under the Construction Grants program. This set-aside was created by the 1977 amendments to the Clean Water Act, to encourage delegation of the Construction Grants and other programs. Any state or territory that accepts partial or full delegation of the Construction Grants program is eligible for this set-aside. Presently, forty-nine states and Puerto Rico have met this eligibility test. (Oregon is the exception and is expected to assume partial delegation by 1986.)

While the 205(g) program appears to be a success in achieving its primary policy objective -- to encourage delegation -- there are a variety of important policy issues associated with the program. One key issue is "banking" of

EXHIBIT II-1

A BRIEF RE-CAP OF THE SET-ASIDE PROGRAMS



205(g) funds. To date, the federal government has obligated approximately $188 million more to the states under 205(g) than the states have actually expended. In addition, the Office of Water has noted that approximately $45 million in funds potentially available for obligation under 205(g) have not yet been obligated. In all, there is currently approximately $234 million in unexpended 205(g) allotments. As shown in Exhibit II-2, some states have more than four years' worth of available but unexpended 205(g) funds.

Some critics of the 205(g) program argue that maintaining large amounts of "banked" 205(g) funds is poor policy, for one or more of the following reasons: (1) many of the states with large amounts of "banked" 205(g) resources have nevertheless failed to move beyond only partial delegation; and (2) there are many potential high priority uses for these funds. A contrasting view, expressed by many, is that it is logical, and good policy, for states to "bank" at least some of their 205(g) funds, to ensure the long-run stability of the management of their delegated responsibilities, especially in light of the need to ensure an orderly phase-out of federal funding for the program should such a decision be made.

C. The 205(j) "Planning" Set-Aside

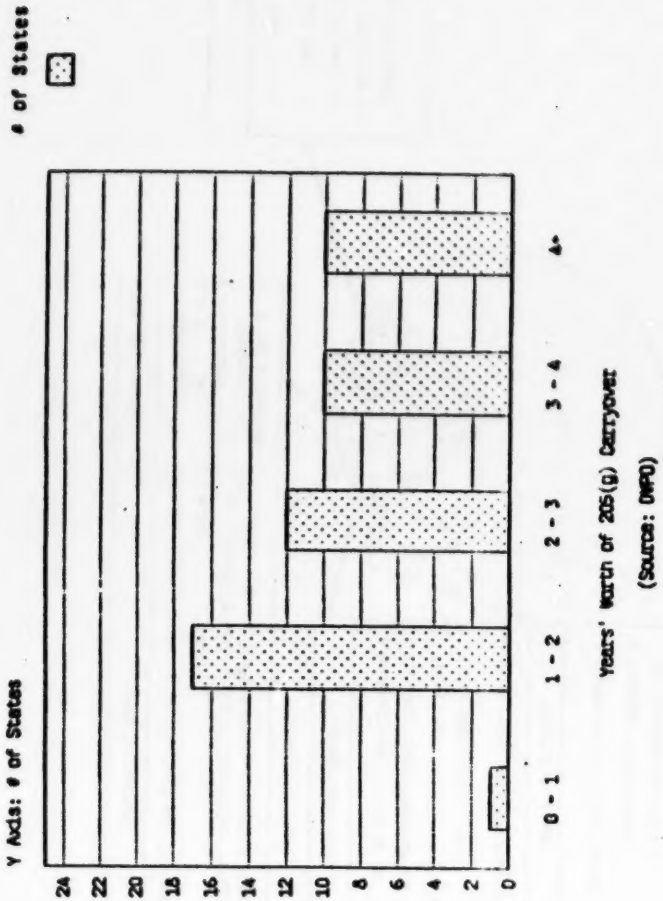
Under this provision, EPA is required to set aside 1% or $100,000 (whichever is greater) of a state's Construction Grants allotment to be used directly by the states for water quality management planning activities including, for example, studies to identify the most cost-effective and locally acceptable point and nonpoint measures to meet and maintain water quality standards. This program was established by the 1981 amendments to the Clean Water Act, and is viewed by some as a replacement for the 208 grant program ("Area-Wide Waste Treatment Management Planning"), which by then had been essentially phased out. To date, a wide array of planning and analysis projects have been funded under the 205(j) set-aside -- for example, studies of issues associated with nonpoint runoff, pretreatment, groundwater, integrated environmental management, and other areas.

One of the key issues is whether 205(j) should continue to be funded as a mandatory set-aside derived from Construction Grants funding. Many individuals

EXHIBIT II-2

Some States Have More Than 4 Years of 205(g) Carryover

(FY 83 Figures)



(Source: DMPO)

believe that 205(j) is essentially a "budgetary gimmick" -- a way of replacing 208 funding by tying the funding to a program less subject to changes in annual appropriations. According to this argument, 205(j) represents a net drain on the Construction Grants program, because it takes away 1% of the funds that otherwise would be available for construction purposes and the resulting planning studies have, in many cases, little direct relevance to the Construction Grants program. A contrasting view is that the 205(j) program is invaluable, because it provides a predictable source of funds and supports many types of high-priority studies, and the Agency as a whole derives a net benefit from the program.

D. The 205(h) "Rural" Set-Aside

Under this provision, EPA is required to set aside 4% of the Construction Grants allotment for any state that meets a specified definition of "rural". At present, 34 states meet this definition. In addition, the Governors of other states may request that the Administrator set aside funds for this purpose; to date, 2 states (Connecticut and Massachusetts) have requested and have received such treatment.

Funds in the 4% rural set-aside reserve can be used solely for financing the federal share of POTW construction projects that: (1) are in small communities or in highly dispersed sections of larger municipalities; and (2) employ "alternatives to conventional sewage treatment...." Any rural set-aside funds that are not obligated for these allowable uses within two years of when the funds are initially made available are subject to reallotment.

One important policy issue related to this program is whether it should distinguish between rural and urban states. Some observers believe that if this set-aside is mandatory in rural states, it also should be mandatory in urban states (or that it should be optional in both), in order to help ensure that small communities in urban states are treated the same as their counterparts in rural states.

Another important policy issue associated with the rural program is whether it has an overly strong effect on how states rank projects for federal financial assistance. Each year states rank proposed projects and, in cooperation with their EPA Regional Office, decide which projects should be funded. In some cases, to ensure that none of the rural set-aside funds are lost to reallotment, some states award "bonus" points to some projects that would qualify for rural set-aside funding, to ensure that the projects move into the fundable range. In other cases, states employ "bypass" procedures to achieve the same result (i.e., they skip higher priority projects, to fund lower-priority, small community projects). Both procedures (bonus points and bypass procedures) are allowable under the state priority list system. Some individuals involved in the management of the program believe that the net effect is that too many lower-priority projects are being funded as a result, and that removing the threat of reallotment of unused Rural set-aside funds would help alleviate this problem.

E. The 205(i) "Innovative/Alternative" Set-Aside

The Innovative/Alternative (I/A) set-aside program, established by the 1977 amendments to the Act, was designed to provide explicit encouragement for greater use of innovative and alternative technologies for projects funded under the Construction Grants program. Section 205(i) provides that a minimum of 4% of a state's construction grants allotment is to be made available solely for an I/A reserve; a state can elect to put up to 7.5% in this reserve. These funds are used exclusively for providing financial incentives to encourage municipalities within the state to employ innovative or alternative technologies. This incentive is in the form of a bonus. For projects that employ conventional technology, the federal share of the eligible costs is 55%. However, for municipalities that employ innovative or alternative technologies, the federal share can be 75%. The extra 20% bonus is financed by the I/A set-aside reserve. (Prior to FY 85, baseline federal funding was 75%, and the I/A bonus was 10%.) If a state elects to have less than 4% set aside for its I/A reserve within two years of the initial appropriation, the amount not set aside is lost to reallotment.

One of the key features of the I/A program is that any portion of the I/A reserve that is used by a state for I/A projects exerts a strong influence on the state's other available Construction Grants funds. For each dollar of its I/A reserve that a state wants to use for an I/A bonus, the state must allocate $2.75 of its other available "regular" federal Construction Grant dollars for that project.

> This additional $2.75 is sometimes referred to as the I/A "pull". For example, suppose that State Y wants to fund Municipality X's $1,000,000 I/A project, and that State Y elects to award it a 20% bonus -- $200,000 -- out of the state's I/A reserve. To use $200,000 of its I/A reserve as a bonus for Municipality X's project, the state also has to commit $550,000 of its regular federal Construction Grant dollars (i.e., the usual 55% federal share) for that project.

Similar to the rural set-aside program, one of the key policy issues associated with the I/A program is that it may provide an overly strong incentive for the states to select I/A projects for funding, using "bonus point" and "bypass" procedures. Again, the concern is that in order to avoid losing dollars to reallotment, states are selecting some I/A projects that are relatively low priority compared to other, conventional projects that are competing for funding. In combination with the "pull" factor, this may substantially reduce the payoff (in terms of water quality objectives) of available Construction Grant resources. As discussed in more detail in the next chapter, among the alternatives for addressing this issue would be to make this set-aside optional or to remove the threat of reallotment of unused I/A set-aside funds.

CHAPTER III: POTENTIAL MODIFICATIONS TO THE SET-ASIDE PROGRAMS

A. Purpose of this Chapter

The purpose of this chapter is to identify and analyze major policy options for modifying the set-aside programs. This chapter is based in large part on an interim document in which we identified and analyzed a wider range of potential modifications to the set-aside programs. We circulated this document for comments. (For a list of reviewers, see Appendix A.) After reviewing comments received and after further analyzing the set-asides, we refined our list of options into seven major options, which are described and analyzed in this chapter.

Section B of this chapter describes each of the options. Some cut across two or more of the set-aside programs. For example, one option is to make the mandatory set-asides optional; this would affect the I/A, rural and planning set-asides, each of which are currently mandatory. Other options address only individual set-asides; for example, one of the options would limit "banking" under the 205(g) state management assistance set-aside. Section B also describes the major rationale for each option (e.g., some options are primarily aimed at increasing state flexibility; others are aimed primarily at increasing leveraging of available funds). Section C presents an analysis of each of the options, considering both their potential merits and potential problems.

B. Overview of the Options

1. Approach for Developing Options

In developing a range of potential modifications to the set-aside programs, we primarily considered the following two factors:

- Key policy issues associated with the set-aside programs. The previous chapter identifies a range of key issues associated with the set-aside programs. In developing a range of policy options, one of our objectives was to ensure that each of these key policy issues was addressed by at least one option. For example, one of the key issues associated with the 205(g) set-aside is "banking". As described in Chapter II, some observers feel that there is excessive "banking" under the program and that this practice should be controlled or limited. Since this is an important issue we have formulated a policy option that addresses it. In developing this option, we are not necessarily endorsing the view that banking is a bad practice; we are, however, endorsing the idea that a banking limit is an important option to consider. As described in Section C of this chapter, this option has both merits and potential problems.

- The Construction Grants Task Force's "Consensus Goals" for the future Construction Grants Program. In developing a range of modifications to the set-asides, we have also attempted to develop alternatives that would directly promote the "consensus goals" identified by the Construction Grants Task Force. (For convenience, the consensus goals are listed in the table on the following page.) For example, we have developed potential modifications to the set-asides that would help achieve the Task Force's goal of promoting further delegation of the Construction Grants program to the states.

2. Overview of the Options

After circulating initial lists of options for comment, we formulated a set of seven basic options for the set-aside programs, some of which cut

EXHIBIT III-1

SET-ASIDE PROGRAMS APPEAR TO RELATE TO SIX OF THE EIGHT "CONSENSUS" GOALS IDENTIFIED BY THE TASK FORCE FOR FUTURE DESIGN AND DEVELOPMENT OF THE CONSTRUCTION GRANTS PROGRAM

CONSENSUS AREA #1: PROMOTE STATE/LOCAL SELF-SUFFICIENCY

For example, as currently designed, the 205(g) program appears to be successful in helping states build the necessary management infrastructure to manage their delegated responsibilities.

CONSENSUS AREA #2: CERTAINTY AND FLEXIBILITY IN FUNDING

For example, as currently designed, the I/A set-aside appears to cut against the goal that "states should be able to deploy funds flexibly".

CONSENSUS AREA #3: FUTURE NEEDS MUST BE ADDRESSED

The set-asides are not directly relevant to this goal.

CONSENSUS AREA #4: CONTINUED DELEGATION TO STATES

For example, a policy decision on whether banking should be limited under 205(g) must take into consideration the perception that states may be less willing to accept more delegated activities if banking is limited.

CONSENSUS AREA #5: CONTINUITY IN STANDARDS AND COMPLIANCE DEADLINES

The set-asides are not directly relevant to this goal.

CONSENSUS AREA #6: LINKAGE BETWEEN FUNDING STRATEGY AND COMPLIANCE

For example, one option for 205(g) is to link funding levels for individual states to their overall level of compliance.

CONSENSUS AREA #7: EQUITABLE DISTRIBUTION OF FUNDS AND AFFORDABLE PROJECTS

For example, the Rural set-aside is explicitly designed to promote equitable distribution of funds in rural states.

CONSENSUS AREA #8: MAXIMIZE LEVERAGING OF AVAILABLE FUNDS

For example, this consensus goal is relevant to the I/A set-aside, because this set-aside tends to decrease leverajability of funds.

across several of the programs, as shown in Exhibit III-2. As discussed below, these options address a wide range of key issues and Task Force consensus goals.

a. Options Primarily Aimed at Increasing State Flexibility

Options 1 and 2 are designed primarily to address the consensus goal of increasing the capability of states to deploy their available Construction Grants resources flexibly. As shown in Exhibit III-2, these options also have several important secondary goals (e.g., maximize leveraging of available funds).

- Option 1: Make the Mandatory Programs Optional. Under this option, the three mandatory set-asides (I/A, rural and planning) would be made optional. States would be able to elect to set aside any amount they choose for these set-asides, up to the ceiling amounts specified for these programs. Under the rural set-aside, states would be able to set aside anywhere from 0% to 4%; under the planning set-aside, 0% to 1%; and under the I/A set-aside, 0% to 7.5%.

- Option 2: Remove Reallotment Provisions. Under this option, if a state chose not to use the full amount of a mandatory set-aside, the state would not lose the unused amount to the reallotment pool. Instead, the unused balance of a set-aside would be made available to the state for regular construction purposes.

b. Options Primarily Aimed at Increasing Leveraging of Available Construction Grants Funds

We also have developed two options primarily aimed at minimizing the extent to which funds are set aside for low priority uses (e.g., for

EXHIBIT III-2

Options

	Increasing State Flexibility		Increasing Leveraging		New Program	Modified Status Quo	
	Option 1 Make Mandatory Programs Optional	Option 2 Remove Reallotment Provisions	Option 3 Needs-Based Allocation Formulas	Option 4 Limit "Banking"	Option 5 Encourage Revolving Funds	Option 6 Modified Rural Program	Option 7 Modified I/A Program
205(g) State Management Assistance			X	X	X		
205(j) Water Quality Management Planning	X	X	X				
205(h) Rural	X	X	X			X	
205(i) Innovative/ Alternative (I/A)	X	X					X

"banking"; for relatively low-priority planning activities).

- Option 3: Needs-Based Allocation Formulas. Under this option, the state management assistance, water quality planning and rural set-asides would be modified to incorporate needs-based allocation formulas. Currently, each of these programs authorizes or mandates the setting aside of a flat percentage of a state's Construction Grants allotment into a set-aside reserve. In some cases, there is both a flat percentage and a dollar amount, and the amount of the set-aside is set at the larger of the two. Under Option 3, the state management assistance, water quality planning and rural set-asides would be optional, and the allowable amount for the set-aside would be based on a state's demonstrated need, taking into account different needs in among the states for the various set-asides. Any amount not set aside would be made automatically available to the state for its "regular" construction purposes. Option 3 would not apply to the 205(i) I/A set-aside, because it would be difficult, if not impossible, to develop a needs-based formula for this set-aside.

- Option 4: Limit Banking Under the State Management Assistance Set-Aside. Under this option, states would be limited to accumulating a maximum of three years' worth of obligated-but-not-yet-expended 205(g) funds, which we call "banked" funds. Any states with banked funds in excess of this amount would lose eligibility for setting aside more 205(g) funds until the balance of banked 205(g) funds fell below three years' worth. The state then would be eligible to set aside only enough funds into its 205(g) reserve to bring the amount of the reserve up to the three-year limit. States would still be limited to setting aside for 205(g) no more than 4% (or $400,000, whichever is greater) of any

individual annual allotment. As part of Option 4, EPA would develop and issue an explicit policy encouraging states to use excess 205(g) funds for NPDES permitting and enforcement activities and other alternative purposes authorized under 205(g).

c. New Set-Aside Primarily Aimed at Promoting State Revolving Funds

In developing options for modifying the set-aside programs, we also considered the possibility of developing new set-asides. Of course, since the overall trend in the Construction Grants program is to reduce its complexity and to reduce federal involvement, we have taken a conservative approach. Set-asides typically add complexity and federal oversight requirements, and therefore developing new set-asides generally cuts against the overall objectives for the future of the program. For example, one reviewer suggested that we add a new set-aside that would provide special bonus payments to architectural/engineering (A&E) firms for the design of innovative or alternative projects. Such a set-aside might help encourage the use of I/A technology, since A&E firms sometimes are reluctant to take the professional risk of recommending innovative or alternative designs. However, while this idea may have merit, it would simply add more complexity to the Construction Grants program, would put additional strings on federal financial assistance to the states, and would divert more resources from construction.

We were able to identify one new set-aside, based on a proposal by the Office of Water, that is specifically designed to help accelerate turning over the Construction Grants Program to the states. One of major options being considered for the future of the Construction Grants Program is for the states to set up revolving funds, out of which the states would make loans to municipalities for construction purposes. The federal government would help the state establish these revolving funds by enabling states to use part or all of their Construction Grants allotments for the intitial ("corpus") funding of the revolving funds. Based on a proposal by EPA's Office of Water, we have developed a potential new set-aside program that would help promote this objective. Of course, this option is relevant only if the Construction

Grants Program is modified to include state revolving funds.

- Option 5: New Set-Aside for Encouraging the Establishment of State Revolving Funds. Under this option, EPA would develop a new set-aside program, designed to encourage states to adopt state revolving funds. Under this new program, EPA would set aside a certain percentage (e.g. 10%) of the annual Construction Grants appropriation into a new "incentive" reserve, maintained at the federal level. This would reduce the regular Construction Grants allotment to each state by a uniform percentage (e.g., 10%). However, states that agree to set up a state revolving fund would be eligible to receive an additional "bonus" allotment from the incentive reserve; states that do not agree to set up a revolving fund would not receive this second allotment. (This set-aside is described in more detail in section C-5, below.)

d. Modified Status Quo

We identified two options for modifying the status quo that are not incorporated in one of the previous options but are of potential importance.

- Option 6: Modified Rural Program. Under this option, the rural set-aside program would be expanded to cover appropriate conventional technology. Currently, the rural set-aside can be used only to fund projects that employ alternative technology. However, in some cases appropriate conventional technology can meet or exceed the cost-effectiveness of innovative or alternative technology for small communities or for highly dispersed areas of larger municipalities.

- Option 7: Modified Innovative/Alternative (I/A) Program. Under this option, the I/A program would remain mandatory, but states would be given more discretion in how they use

I/A funds. Currently, states can only use I/A set-aside resources to fund 20% "bonuses" for innovative or alternative projects; the baseline federal share (55%) is financed out of the states' regular allotments of Construction Grants funds. As described in Chapter II, above, this creates the I/A "pull". Under Option 7, states would be given the discretion to use I/A funds for financing the regular baseline (55%) portion of innovative or alternative projects. States would not be required to use their I/A set-aside for bonus payments but they would retain the option to do so.

C. Analysis of the Options

This section presents an analysis of each of the options summarized above. Each option is analyzed with respect to how it would help achieve and/or hinder the attainment of the "consensus goals" established by the Construction Grants Task Force. As shown below, virtually all of the options would help achieve some of the Task Force consensus goals while some might also hinder the achievement of some of those goals.

1. Option 1: Make Mandatory Programs Optional

Under this option, also suggested by the Office of Water, the I/A and planning set-asides, which are currently mandatory for all states, would be made optional, and the rural set-aside, which is currently mandatory for rural states and optional for urban states, would be made optional for all states. More specifically, this option would affect the current set-aside programs as follows:

- Planning Set-Aside. Currently, 1% or $100,000 (whichever is larger) of each state's Construction Grants allotment is available solely for setting aside into a water quality planning reserve, which can be used only for funding certain types of planning activities. Under Option 1, states would have the discretion to set aside anywhere from 0% up to the larger of 1% or $100,000 into a planning reserve. If a state chooses to set aside less than the ceiling amount, the difference would not be lost to reallotment; it would automatically be made available for regular construction purposes.

- Rural Set-Aside. Currently, 4% of the Construction Grants allotment of each rural state is available solely for setting aside into a rural reserve. Urban states can elect to set up a rural reserve; two states (Connecticut and Massachussets) have done so. Funds in a state's rural reserve can be used only for funding the baseline federal portion (i.e., 55%) of projects for small communities or highly dispersed sections of larger municipalities. In addition, to be eligible for funding out of this reserve, the projects must employ alternatives to conventional technology. Under option 1, states would have the discretion to set aside anywhere from 0% to 4% into a rural reserve. If a state chooses to set aside less than 4% into a rural reserve, the amount less than 4% would not be lost to reallotment; it would automatically be made available for regular construction purposes.

- Innovative/Alternative (I/A) Set-Aside. Currently, at least 4.5% of each state's Construction Grants allotment must be set aside solely for an I/A reserve, and states have the option of setting aside up to 7.5% for this purpose. Funds put into this reserve are available solely for funding 20% bonuses for I/A projects within the state. Under Option 1, states would have the option of setting aside anywhere from 0% to 7.5% into an I/A reserve. Any amount less than 7.5% that is not set aside into this reserve would not be lost to reallotment; it would automatically be made available for regular construction purposes. For example, a state that wants to promote I/A projects heavily may want to set aside the full 7.5% into the reserve. On the other hand, a state

that does not anticipate the need to award I/A bonuses (either because there are few high-priority I/A projects within the state or because the state has decided for policy purposes not to make I/A bonuses available) may elect to set aside either a very small amount or no resources at all into an I/A reserve.

a. Would This Option Help Achieve Key Task Force Consensus Goals?

This option would help achieve the following Task Force consensus goals.

- **Flexibility in Funding.** Making the set-asides optional would give state more flexibility in deciding how to utilize their Construction Grants allotments, a key Task Force consensus goal. Currently, if a state elects not to set aside the full amount called for under a particular set-aside program, the state loses the difference to reallotment, and loses eligibility to participate in the reallotment pool. Under Option 1, however, states would have more flexibility to decide how much should be set aside, because any amounts not put into a set-aside reserve would be automatically made available to the state for regular construction purposes.

- **Maximize Leveraging of Available Funds.** As described in Chapter II, in some cases states have more I/A, rural or 205(j) planning dollars available than needed for high priority construction projects or planning activities. As a result, some states award "bonus points" and use "bypass" procedures to ensure that a sufficient number of I/A and rural projects are funded to use the full amount of the state's available I/A and rural set-aside dollars, and in some cases states may fund relatively low priority planning activities to ensure full usage of 205(j) dollars. These practices reduce leveraging of available funds because they

divert resources that could otherwise be used for construction projects of higher priority.

Option 1 has the potential to reduce or eliminate this problem, because under this option states could decide on the appropriate level for a set-aside without worrying about losing dollars to the reallotment pool. For example, one observer commented that making the planning set-aside optional "[would] give states the flexibility to fund authorized high priority planning activities without jeopardizing their status in regard to reallotted funds."

- **Compliance.** As described directly above, Option 1 may reduce the extent to which some states award "bonus points" or use "bypass" procedures to qualify some otherwise low priority projects for funding under the I/A and rural set-asides or fund low-priority planning activities to avoid losing dollars to reallotment. To the extent that Option 1 reduces funding of low-priority I/A or rural projects or low priority planning activities, this option may help states better achieve water quality goals, because more resources would be available for higher-priority construction projects that have a greater impact on achieving water quality goals.

b. Would This Option Hinder Key Task Force Consensus Goals?

Of particular concern, this option might hinder the achievement of the following Task Force consensus goals:

- **Affordable Projects.** One of the chief advantages of innovative and alternative technologies is that they are often less costly than conventional technologies. By encouraging the use of innovative and alternative technologies, the I/A and rural set-asides help encourage lower-cost projects. If these set-asides were made optional, it is possible that there would be an overall reduction in the amount of dollars set aside by the states for these programs, and a corresponding decrease in the

number of alternative or innovative projects that are funded. As a result, some individual projects may be more expensive. In addition, with fewer innovative projects being funded -- projects which in some senses are "test cases" for innovative technology -- the long-run the entire program could cost more in future years.

- Equity. Making the rural set-aside non-mandatory may be perceived by some small communities as reducing the equity of the Construction Grants program. One of the basic policy reasons given for establishing this set-aside in the first place was that even though small communities have substantial construction needs, they tend to receive less than their fair share of Construction Grants dollars, (e.g., due to the relative political strength of larger municipalities). Therefore, to the extent that some states may reduce their rural set-aside reserves under Option 1, some small communities may perceive that it would reduce the overall equity of the Construction Grants program.

- Other Considerations. Option 1 may decrease the incentives for states to seek out high-priority uses for their I/A, rural or planning set-asides, because these resources could be used for "regular" construction purposes. As a result, Option 1 would tend to dilute the effectiveness of these set-asides in promoting their intended policy objectives. This would especially be the case in states that happen not to share the policy objectives underlying the set-asides. For example, a state that is already disinclined to fund innovative or alternative projects might elect to cease funding such projects altogether were Option 1 to be implemented. It is not possible to predict with precision the extent to which Option 1 might reduce funding of innovative or alternative projects.

2. Option 2: Remove Reallotment Provisions

A different approach could be used to increase state flexibility. Under this option, the I/A, rural and planning set-asides would still be mandatory. For the first two years after a state's Construction Grant allotment is first made available to the state, 1% (or $100,000) would be available solely for setting aside into a planning reserve, 4% would be available solely for setting aside into an I/A reserve, and for rural states, 4% would be available solely for setting aside into a rural reserve. However, under Option 2, after two years, if a state set aside less than the full amount called for under a particular set-aside program, the difference would not be automatically lost to the reallotment pool. Instead, the difference would automatically be made available to the state as part of its regular allotment.

Under Option 2, a state would have to try for at least two years to utilize these set-asides for their intended purposes. In contrast, under Option 1, once a state receives its Construction Grant allotment for a particular year it could immediately decide not to utilize the I/A, rural or planning set-asides. Option 2 essentially represents a compromise between Option 1 (making the set-asides totally optional) and the status quo (in which states either "use or lose" resources earmarked for the I/A, rural and planning set-asides). Option 2 is not a perfect compromise -- during the two-year period, some states probably would not try very hard to find opportunities to use the full amount of the set-asides for their intended policy purposes -- but it probably would result in a higher utilization of the set-asides than under Option 1, without removing all of their mandatory elements.

a. Would This Option Help Achieve Key Task Force Consensus Goals?

This option would help achieve the following Task Force consensus goals.

- Flexibility in Funding. Under Option 2, states would have more flexibility to decide how to utilize their Construction Grants allotments.

- **Maximize Leveraging of Available Funds.** As described previously, in some cases states use I/A, rural or planning set-aside funds for relatively low-priority purposes rather than lose any of these resources to reallotment. Option 2 would essentially remove the threat of reallotment, and as a result, states might be willing to wait for two years and then use any remaining unutilized I/A, rural or planning set-aside dollars for high-priority "regular" construction projects.

- **Compliance.** Because Option 2 removes the threat of reallotment, some states may reduce the extent to which they perceive the incentive to utilize all of their I/A, rural or planning set-aside resources. To the extent that some states save some of these resources for higher-priority "regular" construction projects, this may result in more Construction Grants dollars being invested in construction projects with the greatest potential impact on water quality.

- **Equity.** Option 2 may increase equity because states that cannot fully utilize their set-aside resources for reasons beyond their control will not lose these dollars to reallotment. In addition, some municipalities that have projects that do not qualify for funding under the I/A or rural program may perceive that Option 2 would increase the equity of the Construction Grants Program, because Option 2 would reduce incentives for states to use bonus points or bypass procedures for relatively low-priority projects that do happen to qualify for these set-asides.

b. Would This Option Hinder Key Task Force Consensus Goals?

Of particular concern, this option might hinder the achievement of the following Task Force consensus goals:

- **Affordable Projects.** Option 2 might reduce incentives for states to encourage their municipalities to utilize innovative or alternative technologies, because any resources not utilized for the I/A or rural set-asides would not be lost to reallotment. As a result, there might be a decrease in the number of innovative or alternative projects that are funded, even where these technologies -- which are generally lower-cost than conventional technologies -- would be appropriate.

- **Equity.** As described above, one of the basic policy purposes underlying the rural set-aside was that it would improve the chances for small communities to receive their "fair share" of Construction Grants resources. Some small communities may perceive Option 2 would reduce the equity of the Construction Grants Program because under this option states that are currently subject to the rural set-aside would have less of an incentive to fund projects in small communities.

- **Other Considerations.** Option 2 probably would decrease the incentives for states to seek out high-priority uses for their I/A, rural or planning set-asides, because after two years these resources would be available for "regular" construction purposes. As a result, Option 2 would tend to dilute the effectiveness of these set-asides in promoting their intended policy objectives. This would especially be the case in states that happen not to share the policy objectives underlying the set-asides.

3. Option 3: Needs-Based Allocation Formulas

This option would apply to three of the set-asides -- the state management assistance, water quality planning and rural set-asides. Under this option, each of these three set-asides would become optional. A needs-based

- **Maximize Leveraging of Available Funds.** As described previously, in some cases states use I/A, rural or planning set-aside funds for relatively low-priority purposes rather than lose any of these resources to reallotment. Option 2 would essentially remove the threat of reallotment, and as a result, states might be willing to wait for two years and then use any remaining unutilized I/A, rural or planning set-aside dollars for high-priority "regular" construction projects.

- **Compliance.** Because Option 2 removes the threat of reallotment, some states may reduce the extent to which they perceive the incentive to utilize all of their I/A, rural or planning set-aside resources. To the extent that some states save some of these resources for higher-priority "regular" construction projects, this may result in more Construction Grants dollars being invested in construction projects with the greatest potential impact on water quality.

- **Equity.** Option 2 may increase equity because states that cannot fully utilize their set-aside resources for reasons beyond their control will not lose these dollars to reallotment. In addition, some municipalities that have projects that do not qualify for funding under the I/A or rural program may perceive that Option 2 would increase the equity of the Construction Grants Program, because Option 2 would reduce incentives for states to use bonus points or bypass procedures for relatively low-priority projects that do happen to qualify for these set-asides.

b. Would This Option Hinder Key Task Force Consensus Goals?

Of particular concern, this option might hinder the achievement of the following Task Force consensus goals:

- **Affordable Projects.** Option 2 might reduce incentives for states to encourage their municipalities to utilize innovative or alternative technologies, because any resources not utilized for the I/A or rural set-asides would not be lost to reallotment. As a result, there might be a decrease in the number of innovative or alternative projects that are funded, even where these technologies -- which are generally lower-cost than conventional technologies -- would be appropriate.

- **Equity.** As described above, one of the basic policy purposes underlying the rural set-aside was that it would improve the chances for small communities to receive their "fair share" of Construction Grants resources. Some small communities may perceive Option 2 would reduce the equity of the Construction Grants Program because under this option states that are currently subject to the rural set-aside would have less of an incentive to fund projects in small communities.

- **Other Considerations.** Option 2 probably would decrease the incentives for states to seek out high-priority uses for their I/A, rural or planning set-asides, because after two years these resources would be available for "regular" construction purposes. As a result, Option 2 would tend to dilute the effectiveness of these set-asides in promoting their intended policy objectives. This would especially be the case in states that happen not to share the policy objectives underlying the set-asides.

3. Option 3: Needs-Based Allocation Formulas

This option would apply to three of the set-asides -- the state management assistance, water quality planning and rural set-asides. Under this option, each of these three set-asides would become optional. A needs-based

formula would be developed for each of these set-asides to determine the ceiling amount available for the set-aside in each state. Each state would be eligible to exercise each of the set-asides up to the ceiling amount. Funds not set aside would not be lost to reallotment; they would be automatically available for "regular" construction purposes. The I/A set-aside would not be affected by this option, because by its very nature this set-aside is intended solely to provide incentives for municipalities that elect to use particular types of technologies, many of which are more risky than conventional technologies. By definition, it is difficult if not impossible to define "need" in this context.

Option 3 would affect the state management assistance, water quality planning and rural set-asides as follows:

- 205(g) State Management Assistance Set-Aside. Currently, any state that has accepted at least one delegated activity under the Construction Grants program is eligible to apply for the full 4% state management assistance set-aside. Under Option 3, the maximum amount that a state could receive would depend on the number of delegated activities currently performed by the state or the number to be performed in the next year. Such a determination would be made jointly by EPA and the state prior to the beginning of each fiscal year. While the allocation formula might not be fully deterministic, in general the amount of 205(g) funding available to a state would increase in proportion to the number and complexity of delegated activities a state accepts. For example, the formula could be based on a cost model already developed by the Office of Water. Under Option 3, a state with many delegated activities may be eligible to set aside more than the current limit of 4% if the need can be demonstrated. Each state would have the option of requesting any amount for the set-aside up to the ceiling amount determined by the needs-based formula. In addition, under this option, a state could also demonstrate additional need associated with performing its delegated water permitting and enforcement activities. (While 205(g) funds can be used for these purposes, few states exercise this option currently.)

- 205(j) State Water Quality Planning Set-Aside. Currently, the larger of 1% or $100,000 of each state's Construction Grants allotment is available solely for the planning set-aside. Under Option 3, the set-aside would be non-mandatory. States that elect to exercise the set-aside would have to demonstrate need (e.g., similar to a competitive state grant). The amount of the set-aside potentially available to a state would vary according to demonstrated need. In some cases, the amount of the set-aside could be greater than 1%, if the need is demonstrated. The amount of need demonstrated by the state would determine the ceiling amount for the set-aside that is available for the state; the state would have the option of setting aside any amount up to that ceiling.

- 205(h) Rural Set-Aside. Currently, all rural states are subject to a mandatory 4% rural set-aside. Urban states have the option of requesting the set-aside. Under Option 3, the set-aside would be optional for all states. All states (including urban states) would be subject to a needs determination for this set-aside. Specifically, EPA and each state would determine, based on the most recent Needs Survey and other data, the amount of core construction requirements in small communities or in highly dispersed areas of larger municipalities. This determination would be used by EPA in determining the maximum amount of the rural set-aside for each state. Each state could then elect to set aside any sum up to that maximum for its rural reserve.

a. Would This Option Help Achieve Key Task Force Consensus Goals?

This option would help achieve the following Task Force consensus goals:

- Maximize Leveraging of Available Funds. Option 3 would help reduce unnecessary or unproductive diversion of funds to the various set-aside reserves. For example, as described in Chapter II, currently some states have many years' worth of obligated but unexpended funds in their 205(g) state

management assistance reserves. These resources probably could be better used for funding high priority construction projects or other eligible activities in those states. Because states would no longer be able to obligate large amounts of excess funds into the 205(g) reserve, this option will help ensure that more Construction Grants funds are allocated to construction purposes or for high priority non-Construction Grants state management activities (e.g., NPDES permitting). Similarly, in some cases more resources are currently placed into the planning and rural reserves than needed, and as a result some relatively low-priority activities and projects are funded under these set-asides. Option 3 would help reduce this use of funds.

- Continued Delegation to the States. Option 3 may provide increased incentives for some states to accept additional delegated activities, because the amount of 205(g) funding available to the state would vary according to the degree of delegation accepted by the state. (However, as explained in subsection "b", below, Option 3 also may reduce the incentives for some states to accept greater delegation.)

- Flexibility in Funding. As described above, under Option 3 all of the set-asides would be made optional. For this reason, Option 3 would increase states' flexibility in using their available Construction Grants allotments. In addition, since there would not be a pre-determined ceiling on the set-asides, states that can demonstrate a particularly large need for a particular set-aside would have the flexibility to set aside a larger amount than is currently allowed. (However, as explained in subsection "b", below, Option 3 also may reduce flexibility for states that want to set aside more for a particular set-aside than would be allowed under the applicable needs-based formula.)

b. Would This Option Hinder Key Task Force Consensus Goals?

Of particular concern, this option might hinder the achievement of the following Task Force consensus goals:

- Continued Delegation to States. This option may create uncertainty for individual states with respect to the amount of 205(g) funds that they may receive in the future because the needs-based formula would be new and untested. This may reduce the willingness of some states to consider greater delegation.

- Equity. It may be difficult to develop needs-based formulas for the various that are widely perceived as being "fair". This may be especially difficult because both administrative and construction costs can vary widely among the states, therefore making the same level of need more expensive to satisfy in different states. In addition, switching to a needs-based formula for 205(g) may be perceived as "unfair" by some states that have previously accepted selected delegated responsibilities on the assumption of continued high levels of 205(g) funding and continued capabilities to set aside (and "bank") excess 205(g) funds.

- Flexibility in Funding. Under a needs-based approach, some states probably would not be able to set aside as much as they want to for certain set-asides. For example, this almost certainly would be the case for some states for the 205(g) set-aside; many states that currently set aside 4% for this reserve would not be able to demonstrate a need for that amount. As another example, some states that set aside the full 1% for the water quality planning set-aside might not be successful in demonstrating a need at this level. For states in this situation, Option 3 might represent a reduction in the flexibility of the Construction Grants program compared to the status quo.

- Other Considerations: Because this option would make the rural and planning set-asides non-mandatory, this option might reduce their effectiveness in promoting their intended policy objectives. For example, a state may elect to set aside less into the rural reserve than its eligible ceiling amount. Moreover, developing needs-based formulas could be very hard in some cases, and promulgating final regulations probably could take up to two years. The set-aside programs might be substantially disrupted during this development period.

4. Option 4: Limit Banking Under the State Management Assistance Set-Aside

As described in Chapter II, a much larger amount of funds has been obligated to the states under 205(g) than has actually been expended by the states, and in addition a large amount of funds are potentially available but not yet obligated under 205(g). In all, more than one-quarter of a billion dollars are currently available but not yet expended -- often referred to as "banked" funds. Some states have more than four years' worth of such funds.

As explained in Chapter II, while some observers believe that allowing banking under 205(g) helps encourage states to accept delegation under the Construction Grants program, others have argued that banking should be limited. Option 4 would create such a limit. Specifically, under this option, states would be limited to accumulating a maximum of three years' worth of obligated-but-not-yet-expended 205(g) funds. Any states with banked funds in excess of this amount would lose eligibility for further obligations of 205(g) funds until the balance of banked 205(g) funds fell below three years' worth, and then the state would be eligible to set aside only enough funds into its 205(g) reserve to bring the amount of the reserve up to the three year limit. There would still be a 4% ceiling on the amount that a state could set aside out of its Construction Grants allotment for an individual year.

As part of this option, EPA would develop an explicit policy of encouraging states to use 205(g) funds for their authorized non-Construction Grants purposes (e.g., water permitting and enforcement). Specifically, states would be encouraged to use for these alternative purposes any 205(g) funds in excess of three years' worth and any other 205(g) funds not needed for administering delegated Construction Grants activities.

a. Would This Option Help Achieve Key Task Force Consensus Goals?

This option would help achieve the following Task Force consensus goals:

- Maximize Leveraging of Available Funds. Option 4 would help reduce the amount of available funds that are being obligated but not expended under the Construction Grants program. This option probably would result in a greater proportion of Construction Grants funds being expended for other high priority state management activities (e.g., NPDES permitting and enforcement) and wastewater treatment plant construction projects.

- Continued Delegation to States. Under this option, states would still have the capability of banking sufficient funds (up to three years' worth) to manage both ongoing activities and an orderly phase-out of federal funding, while making more funds available for construction or other priority needs.

- Other Considerations. This option may create an incentive for increased use of 205(g) funds for their alternative authorized purposes (e.g., for financing state costs of managing the NPDES program). Certain states may prefer to channel excess 205(g) funds -- i.e., funds in excess of three years' worth -- into these alternative purposes, rather than into construction.

b. Would This Option Hinder Key Task Force Goals?

Of particular concern, this option might hinder the achievement of the following Task Force consensus goals:

- o Continued Delegation to States. Senior managers in many states believe that large amounts of banked 205(g) funds provide security against uncertainties and volatility in federal Construction Grants funding (e.g., delays in appropriations). Reducing the amount of banked 205(g) funds may increase the states' perceived risk of assuming greater delegation.

- o Equity. This shift in policy may be perceived as unfair by states that have based prior decisions on the assumption that banking would continue to be allowed.

5. Option 5: New Set-Aside for Encouraging the Establishment of State Revolving Funds

As described earlier, one of the major modifications being considered for the future design of the Construction Grants Program is the establishment of state revolving funds, out of which states would make loans to municipalities to fund their construction needs. The federal government would help finance these revolving funds by enabling states to use part or all of their Construction Grants allotments for startup funding for such revolving funds.

Under Option 5, EPA would develop a new set-aside program, designed to encourage states to adopt state revolving funds. Under this new set-aside, EPA would reserve a certain percentage (e.g. 10%) of the annual Construction Grants appropriation into a new "incentive" reserve, controlled by EPA. For example, if the annual Construction Grants allotment for a particular year is $2.4 billion, EPA would allocate 10% -- $240 million -- into the new incentive reserve. EPA would then make regular Construction Grants allotments to the

states from the balance of the appropriation -- i.e., $2.16 billion -- using the statutory allocation formula specified in Title II of the Clean Water Act. As a result, each state's normal allocation of Construction Grants dollars would decrease by 10%.

However, all states that agree to set up a Construction Grants revolving fund would be eligible to receive a special allotment out of the incentive reserve. For example, assume that in a typical year, State X's normal allotment of Construction Grants dollars would be $100 million. Under Option 5, State X's allotment would be only $90 million (i.e., 90% of $100 million). However, if State X agrees to set up a state revolving fund, the state would be eligible for a special allotment from the incentive reserve. For example, EPA might award State X a $15 million special allotment from the incentive reserve, thereby bringing State X's total allotment for the year to $105 million -- which is substantially larger than what its normal allotment would have been had the state not elected to set up a revolving fund. In contrast, states that elect not to set up a revolving fund would receive only 90% of their normal allotment of Construction Grants dollars.

a. Would This Option Help Achieve Key Task Force Consensus Goals?

Option 5 would help achieve the following key Task Force consensus goals:

- o Greater State and Local Self-Sufficiency. Option 5 would provide tangible incentives for states to adopt state revolving funds. Adoption of revolving funds is an important way for states to obtain greater self-sufficiency and for the federal government to shift the responsibility of the Construction Grants programs to the states and localities.

- o Flexibility in Funding. This option will help promote greater flexibility in funding, because revolving funds afford states more discretion in how to utilize Construction Grants resources.

b. Would This Option Hinder Key Task Force Consensus Goals?

Of particular importance, this option may hinder the achievement of the following key Task Force consensus goal:

- Equity. At least in the medium-term, some states that are not well-equipped to establish a revolving fund may perceive this shift in policy as unfair, because it will reduce their allotments of Construction Grants resources. This option may be perceived as being more fair if there were a phase-in period before it takes effect.

6. Option 6: Modified Rural Program

Under this option, the rural set-aside would be expanded to cover appropriate conventional technology. Currently, the rural set-aside can be used only to fund projects that employ alternatives to conventional sewage treatment. However, in some cases appropriate conventional technology can meet or exceed the cost-effectiveness of innovative or alternative technology for small communities or for highly dispersed areas of larger municipalities.

a. Would This Option Help Achieve Key Task Force Consensus Goals?

This option would help achieve the following Task Force consensus goals:

- Equity. By making appropriate conventional technology fundable under this set-aside, Option 6 may be perceived as more fair for small communities that cannot currently obtain access to rural set-aside funds even though they would be willing to use appropriate, small-scale conventional technology.

- Compliance. Because states would be able to fund a wider range projects under this option (i.e., appropriate

conventional technology), some states may perceive less of an incentive to award bonus points or employ bypass procedures to fund otherwise lower-priority small community projects that happen to use alternative technology. This may result in states funding projects that have additional water quality improvement impacts.

b. Would This Option Hinder Task Force Consensus Goals?

Of particular importance, this option may hinder the achievement of the following key Task Force consensus goal:

- Equity. It may be difficult to define "appropriate conventional technology" sufficiently tightly to ensure that there is consistent decision-making on eligibility under this set-aside, in fact as well as in appearance.

7. Option 7: Give States More Flexibility in Using the I/A Set-Aside

Currently, states can use resources in their I/A set-aside reserves only for providing 20% bonuses for innovative or alternative projects -- i.e., bonuses on top of the regular 55% baseline federal share. (States provide the 55% baseline share out of their regular Construction Grants allotments.) As described in more detail above, because the I/A reserve can be used only to provide bonuses, this creates the I/A "pull" effect; for every $1.00 a state allots to a project out of the I/A reserve towards a bonus payment, the state also must allot $2.75 to the same project out of its regular Construction Grants allotment. Under Option 7, states would be given the option to use resources in the I/A reserve to fund the baseline (55%) portion of innovative or alternative projects. States would not be required to use I/A set-aside resources for bonus payments but they would retain the option to do so.

a. Would This Option Help Achieve Key Task Force Consensus Goals?

Option 7 would help achieve several Task Force consensus goals.

- **Flexibility in Funding.** Option 7 would help increase state flexibility, because states would have more flexibility than under the status quo to decide how to utilize their I/A set-aside resources.

- **Maximize Leveraging of Available Funds.** Because states would have the option of using I/A set-aside resources for baseline payments (rather than bonuses), this would reduce the I/A "pull". This would help increase leveraging of available funds, because some states that currently use bonus points and "bypass procedures" as a means of fully utilizing their I/A reserve would feel less of an incentive to do so.

- **Equity.** Some municipalities that have projects that are not eligible for funding under the I/A or rural program may perceive that Option 2 would increase the equity of the Construction Grants Program, because this option would reduce incentives for states to use bonus points and bypass procedures for relatively low-priority projects that happen to qualify for these set-asides.

b. Would This Option Hinder Key Task Force Consensus Goals?

Of particular concern, Option 7 might hinder the achievement of the following Task Force consensus goals:

- **Affordable Projects.** In some states fewer resources would be committed to innovative or alternative projects, to the extent that these states use I/A resources for baseline funding rather than bonus payments. This may reduce the

overall utilization of innovative or alternative technologies, which may cut against the Task Force goal of encouraging affordable projects.

- **Other Considerations.** In addition, if a particular state decides to no longer use its I/A resources for bonus payments -- but instead only for funding the 55% baseline federal share -- this will reduce the incentives the I/A set-aside provides for municipalities. Specifically, in those states a municipality no longer would be able to receive 75% federal funding of an innovative or alternative project, only the same 55% that any other type of project is eligible to receive. This may weaken the overall effect of the I/A set-aside to achieve the goals that Congress designed it to achieve -- in particular, to provide additional financial incentives for municipalities to use innovative or alternative technologies.

APPENDICES

APPENDIX A: LIST OF REVIEWERS ("X") AND RESPONDENTS ("C")

This appendix lists the individuals who received copies of the following two interim documents that were prepared as part of this study:

- Interim Document #1: An Overview of Construction Grants Set-Aside Programs and Policy Issues Associated With These Programs; and
- Interim Document #2: Interim Progress on the Definition and Analysis of Alternatives for the Construction Grants Set-Aside Programs.

We carefully reviewed all comments received, and incorporated them as appropriate. In some cases we received suggestions for new set-aside programs or for additional modifications of existing programs, mostly in response to Interim Document #2. We considered all suggestions; some are reflected in the seven options we present in Chapter III; others were not included. (In addition, we decided not to include many of the alternatives we initially identified in Interim Document #2 because they turned out to be less important than the seven alternatives presented in Chapter III.) See the first section of Chapter III for a description of our criteria for selecting options to be included in this final report.

The following table starting on the next page lists reviewers (X), and those who returned comments (C). After this table, we present a synopsis of selected key comments.

List of Reviewers (X) and Respondents (C)

	Interim Document #1	Interim Document #2
U.S. EPA - Headquarters		
John Adams (OC)	X,C	X,C
George Ames (OWPO)	X	X
James Barnes (OGC)	X	X
Cora Beebe (OSW)	X	X
Robert Blanco (OWPO)	X	X
Josephine Cooper (AA-OEA)	X,C	X
Keith Dearth (OWPO)	X	X,C
James Hanlon (OWPO)	X	X
Robert Hardaker (OWPO)	X	X,C
James Horne (OC)	X,C	X,C
Henry Longest (DAA-OW)	X	X
Howard Messner (AA-ARM)	X	X,C
Richard Mitchell (OWPO)		C
Carl Meyers (OWPO)	X	X
Courtney Price (AA-OCEM)	X	X
Victoria Price (OW)	X	X
Steven Pressman (OGC)		C
Jack Ravan (AA-OW)	X	X
Milton Russell (AA-OPPE)	X	X
Lee Thomas (AA-OSWER)	X	X
Richard Thomas (OWPO)	X,C	X,C
William Whittington (OWPO)	X	X
U.S. EPA - Regions		
Todd Cayer (V)	X	X
Hendon Crane (VI)	C	
Harold Hopkins (IV)	X	X,C
Charles Jeter (IV)	X	X
Myron Knudson (VI)	X	X,C
James Newsom (III)	X	X,C

	Interim Document #1	Interim Document #2
Frances Phillips (VI)	X	X
Charles Sutfin (V)	X,C	X
Office of Management and Budget		
Norman Brandal	X,C	X
Management Advisory Group for the Task Force		
Leon Asadoorian	X	X
J. Edward Brown	X	X
John Foster	X	X
Corinne Freeman	X,C	X
Walter Garrison	X,C	X
Karen Gifford	X	X
Albert Gutierrez	X	X
Terry Hoffman	X	X
Harry Kinney	X,C	X
Joseph Lagnese, Jr.	X	X
J. Leonard Ledbetter	X	X,C
Kenneth Miller	X	X
Larry Silverman	X	X
Gerald Teletzke	X	X
F. Thomas Westcott	X	X
Gordon Wood	X	X

	Interim Document #1	Interim Document #2
Association of State and Interstate Water Pollution Control Administrators		
Roger Kanerva	X,C	X
Tex La Rosa	X	X
Robbi Savage	X,C	X
Judy Hare	X	X
National Association of Towns and Townships		
Hamilton Brown	X	X

Synopsis of Selected Key Comments Submitted By Respondents

Some of the following comments refer to options that presented in Interim Document #2. In that document, the options are identified by letter/number codes. For convenience, we present the list of options and their codes from that Interim Document following the synopsis.

Josephine Cooper (OEA) suggested analysis in four key areas listed below:

- o Means of using 205(g) as a "lever" with delegated states.
- o Conceptual consistency of set-asides in a revolving fund scenario.
- o Practicality of uniform set-aside programs in a diverse revolving fund environment.
- o Reducing the required percentage of the I/A and Rural reserves.

Keith Dearth (OWPO) focused on options for modifying the Rural set-aside. These included:

- o A proposed new set-aside to expand the eligible population size definition of small community.
- o An emphasis on the importance of a mandatory program to foster the utilization of low cost alternative systems.
- o Notes to amplify or add to the "Consensus Goals" analysis section of several options.
- o A recommendation that only EPA be able to designate the "appropriate conventional technology" in Option R.2 in Interim Document #2.

Robert Hardaker (OWPO) submitted comments focused especially on 205(g) options. He strengthened the terms for options G.2 and G.4, and added to the "Consensus Goals" analysis for G.2, G.3 and G.5. He offered similar input for J.2. Mr. Hardaker also provided several technical clarifications regarding 205(g).

Richard Mitchell (OWPO) submitted comments primarily on 205(g). He also stated his preferences (based primarily on equity) for J.2, a combination of R.3 and R.5, and I/A.1. (The letter/number codes refer to options presented in Interim Document #2.) For 205(g), Mr. Mitchell preferred G.1 and suggested that equity concerns with a banking limit could be handled by giving advance notice. For options G.2, G.3, and G.4, Mr. Mitchell raised procedural/implementation concerns about the variety and complexity of delegated functions; and mentioned the difficulty of determining 205(g) reserve percentages for policy goal progress or need for funds at the state level.

Steve Pressman (OGC) submitted comments focused on options G.1 and G.5. For options G.1 and G.5, Pressman strengthened the terms of each option and clarified a technical question with a regulatory citation. For J.1, Pressman raised a point about states' perceived use of 205(g) funds versus intended purpose. In addition to commenting on our interim analysis, Mr. Pressman added two options to each set-aside: (1) do nothing (i.e., leave the status quo as presented in Chapter II of this final report); and (2) eliminate the set-asides.

Richard Thomas (OWPO) submitted comments focused on the I/A program, with some additional comments on the Rural program. In response to Interim Document #1, Mr. Thomas stated that the "coverage of I/A set aside is good overall." He commented on scarce information about I/A O&M costs, and the actual limited flexibility of federal and state program managers. He also clarified technical issues related to the I/A set-aside.

In response to Interim Document #2, Mr. Thomas prefaced his submission with two points: (1) His comments are not necessarily based on reaction to "consensus area goals", but stem from his views as the National I/A Program Coordinator; and (2) A long-standing Congressional position (that the wastewater profession has been less than enthusiastic about implementing low-cost alternatives) exists, and this is a key reason why Congress established a mandatory I/A program. His specific comments for the I/A and Rural programs incorporated his general comments, clarified the descriptive terminology used, and added to the analysis of options for "Consensus Goals" particularly for the I/A.1, I/A.2, I/A.3 and R.2 options in Interim Document #2.

Hendon Crane (IV) offered ideas for modification of the Rural and I/A programs. Mr. Crane agreed with the idea of establishing a banking limit, and of encouraging the use of 205(g) funds for non-CG uses under special conditions. He advocated a nationwide, mandatory "rural" program for either small communities or "alternative technology" projects; and also advocated the retention of the I/A program in its current form--mandatory with "bonus" grant funding.

Harold Hopkins (IV) provided many comments on the options proposed in Interim Document #2. For the most part, Hopkins endorsed the 205(g) and (j) options, but raised questions about the merit of altering 205(h) and instituting the 205(i) options suggested. Mr. Hopkins' questions focused on the feasibility or the value (of added restrictions) of the approaches. Mr. Hopkins stated that Region IV has had little problem obligating 205(h) funds, but would like to see tighened eligibility criteria.

Regarding I/A, Mr. Hopkins favors the retention of the current program primarily because it encourages state autonomy and flexibility, offers valuable financial incentives, and endorses strong policy in favor I/A technologies. This program too, could benefit from a few technical clarifications but the majority of problems previously associated with it -- especially the I/A "pull" -- were minimized by the most recent amendments which lowered the federal baseline share to 55% (from 75%).

Myron Knudson VI favors proposed options G.1, J.2 and R.1. Mr. Knudson proposed to retain the current form of the I/A program with one slight modification: add a "bonus" for consulting engineers to compensate for a variety of "risks" to the engineer associated with I/A projects.

James Newson (III) prefers the I/A.1 option in Interim Document #2 and offered a variation of the banking option for the 205(g) which emphasized more rigorous grants management using existing regulations supplemented by more definitive guidance.

Charles Sutfin (V) phoned in comments on Interim Document #1. He amplified on some of the results of the analysis and offered a few minor clarifications of language used in that document.

Norman Brandel (OMB) primarily focused on refinement of terminology for the discussion of the 205(g) and 205(i) set-asides. Mr. Brandel also provided technical clarifications.

Corrine Freeman (MAG/CGP) submitted comments focused primarily on the 205(g) and 205(i) set-asides. Freeman endorsed a 205(g) banking limit concept. Ms. Freeman supports the continuation of the I/A program in its present form, especially since the most recent amendments had the effect of reducing the I/A "pull".

Walter Garrison (MAG/CGP) focused on the I/A, rural and state management assistance set-asides. Garrison endorsed the I/A program and suggested that it more aggressively encourage the use of efficient and cost-effective projects. For the rural program, he advocated the elimination of the "alternative technology" requirements, and changing eligibility from "small communities" to "small and needy communities". Garrison suggested that the 205(g) reserve be maintained at ceiling of the greater of 4% or $400,000. Garrison also offered an endorsement of the revolving loan concept but requested clear-cut options for states to select either a grant or a loan mechanism, or a combination, for spending federal CGP funds.

Harry Kinney (MAG/CGP) endorsed the use of 205(g) to encourage full delegation of the Construction Grants Program. Mr. Kinney also advocated making the I/A program optional.

J. Leonard Ledbetter (MAG/CGP) submitted comments on Interim Document #2, offering ideas on each set of set-aside options. Ledbetter advocated a 205(g) banking limit and continuation of the current allotment formula. For 205(j), Mr. Ledbetter endorsed a stand-alone appropriation unrelated to the CGP, and an optional program. For 205(h), Ledbetter suggested the elimination of this program, or its combination with the 205(i) program. Ledbetter's response to the 205(i) options was to advocate a new option. This new I/A option would return unused I/A reserves to states' regular pools of Construction Grants funds after one year, and would eliminate reallotment for I/A.

Roger Kanerva (ASWIPCA) commented on Interim Document #1, focusing on the 205(g) and (j) programs. Mr. Kanerva also provided some state (of Illinois) history on CGP delegation and current CGP management strategy. Comments on 205(g) and (j) either endorsed the report's conclusions or raised additional facts and issues for subsequent analysis. Kanerva also offered a few passing thoughts on the 205(i) program.

Robbi Savage (ASWIPCA) restated ASWIPCA's position statements on the set-asides, prepared recently. These statements endorse restrictions on uses of 205(g) and (j) funds, and the elimination of mandatory requirements for 205(i) and (h) set-asides.

OPTIONS FOR MODIFYING THE 205(g) SET-ASIDE

Option	Description
G.1: Banking Limit	Cap the amount of 205(g) funds that a state can bank -- for example, a cap of 3 years' worth of banked funds. Excess funds would have to be used by the state for authorized non-CG purposes (e.g., permitting activities under section 402 of the Clean Water Act) or for regular construction projects.
G.2: Tie % to Degree of Delegation	Make the amount of 205(g) funds available to a state as function of the degree of delegation attained by the state. For example, a state with only one delegated function may qualify only for a 1% of the 205(g) set-aside, while a fully delegated state may qualify for 100% of the 205(g) reserve.
G.3: Tie Certain % To Progress in Setting up a Revolving Fund or in Achieving Other Policy Goals	Make the amount of 205(g) funds available to a state depend in part on the state's achievement of specified policy goals. (For example, specify that 1/2 of 1% can only be used for administering a revolving fund.)
G.4: Tie % to Needs	Use a needs-based approach to determining the amount of 205(g) funds that can be set aside for individual states.
G.5: Promote Non-CG Uses of 205(g) Funds	Require states to use excess 205(g) funds -- e.g., funds beyond 3 years' worth -- for authorized non-CG purposes (e.g., permitting activities under section 402 of the Clean Water Act).

OPTIONS FOR MODIFYING THE 205(j) "PLANNING" SET-ASIDE

J.1: Stand-Alone Appropriation	Remove this program from section 205, and establish it as a separate program, with its own, stand-alone financing.
J.2 Optional Program	Make 205(j) a discretionary set-aside. States could use up to 1% of their allotment for 205(j); any portion of the 1% not obligated for 205(j) could be used for construction purposes.

OPTIONS FOR MODIFYING THE RURAL SET-ASIDE

Option	Description
R.1: Non-Mandatory Program	Authorize, but do not mandate, this set-aside.
R.2: Appropriate Conventional Technology	Expand the scope of the I/A set-aside to cover low-cost conventional projects (as opposed to the current program which prohibits this).
R.3: Reduced Reserve %	Reduce the % amount of the Rural set-aside reserve -- e.g., to a range of 1% - 3% (in comparison to the current 4%).
R.4: Expand Coverage for Small Communities in Urban States	Require the set-aside for urban states (in comparison to the current situation in which the set-aside is optional for urban states). Perhaps set a lower mandatory % for urban states.
R.5: More Tightly Defined Criteria	Tighten the definitions of "small communities" and "dispersed areas", to reduce uncertainty associated with project eligibility decisions.

OPTIONS FOR MODIFYING THE I/A SET-ASIDE

I/A.1: Stand-Alone Appropriation	Replace the reserve provision with a new, stand-alone appropriation for I/A -- a national pool.
I/A.2: Direct Subsidy	Modify the I/A set-aside to replace the "bonus" or "kicker" design with a direct subsidy design -- i.e., I/A set-aside funds could be used to fund the baseline portion of projects only.
I/A.3: Decreased Reserve	Reduce the % amount of the I/A set-aside reserve -- e.g., to a range of 1% - 3% (in comparison to the current 4% - 7.5% range).
I/A.4: Optional Program	Authorize, but do not mandate, the set-aside.
I/A.5: Larger "I" Bonus	Compensate for greater-risk "I" projects by ensuring that the "I" bonus is larger than the "A" bonus (e.g., "I" bonus = 20%; "A" bonus = 10%).

The "Federal Cash Transactions Report" shows a "snapshot" of Letter-of-Credit-financed cash -- i.e., the balance as of the date of the report. It does not show monthly balances for the Quarter. The Report does not break out the separate programs covered under the Letter of Credit. If a state has a cash balance on hand associated with more than one grant programs (e.g., 205(g); 105 Air Grants), the Report does not subdivide the cash balances by program.

3. The Flow of Funds is Essentially The Same Under the 205(j) Set-Aside Program

Like the 205(g) program, the 205(j) program provides funding directly to states. Accordingly, the Letter of Credit and associated rules and mechanisms related to the flow of funds are essentially the same as described in 2, above.

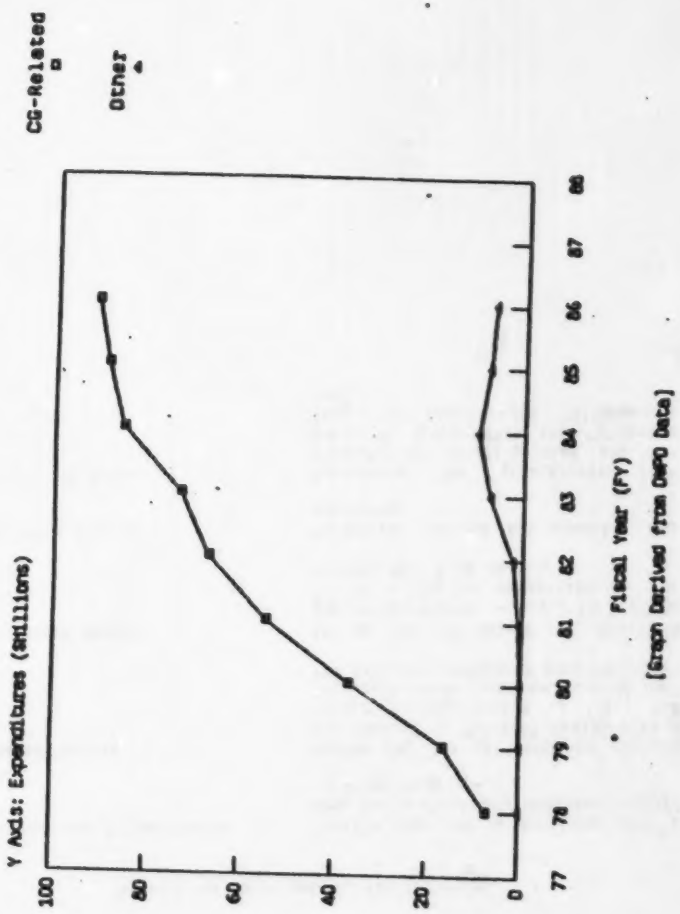
4. The Flow of Funds is Different for the Innovative/Alternative (I/A) and Rural Programs

I/A and Rural set-aside funds are used for construction purposes. Therefore, like all "concrete and steel" money, these dollar resources are covered under a grant agreement between EPA and the municipality involved. In addition, the resources are payable to a municipality only after the municipality incurs the cost and makes an expenditure.

To be reimbursed, a municipality submits a "Request for Reimbursement" (Form 270) to the EPA Regional Office. After reviewing and approving the Form 270, the EPA Regional Office submits the request to the U.S. Treasury, via a "Schedule". The Treasury then sends a check to the municipality.

APPENDIX B-2

205(g) Funds Have Been Used Primarily for CG Management



(Graph Derived from DMPO Data)